ENGINEERING NEWS-RECORD

How to build a beach at economy prices *(p. 34)*

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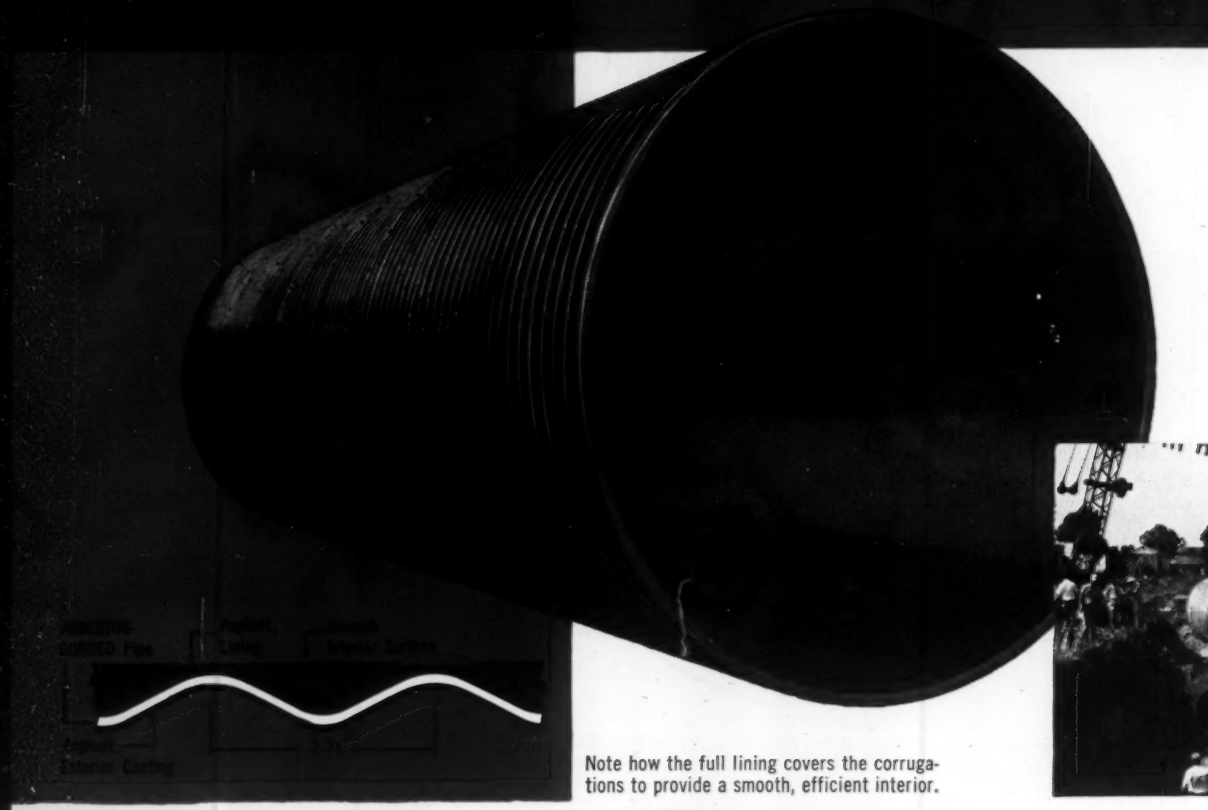

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Withstands loads without cracking, breaking or crushing.

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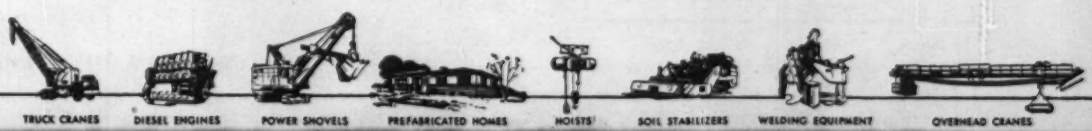

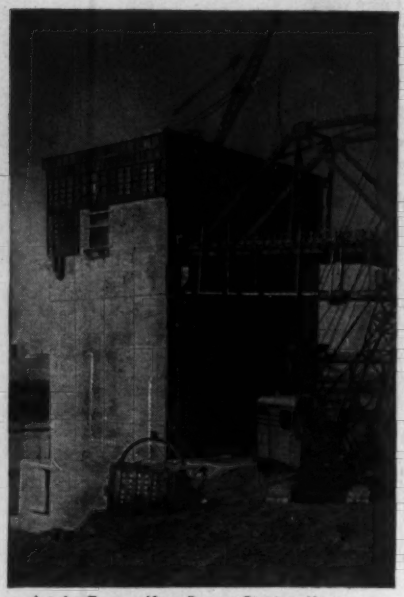

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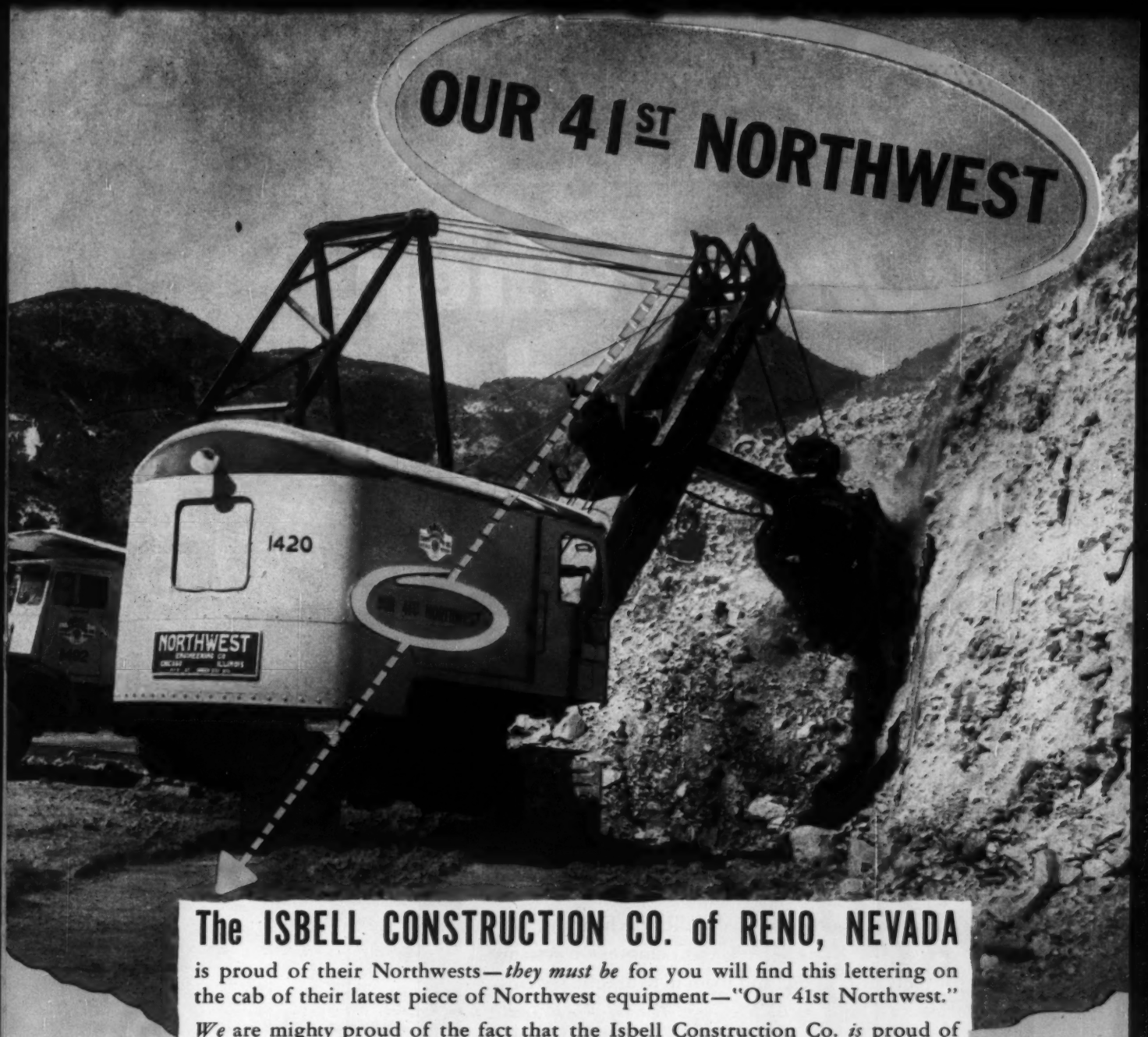

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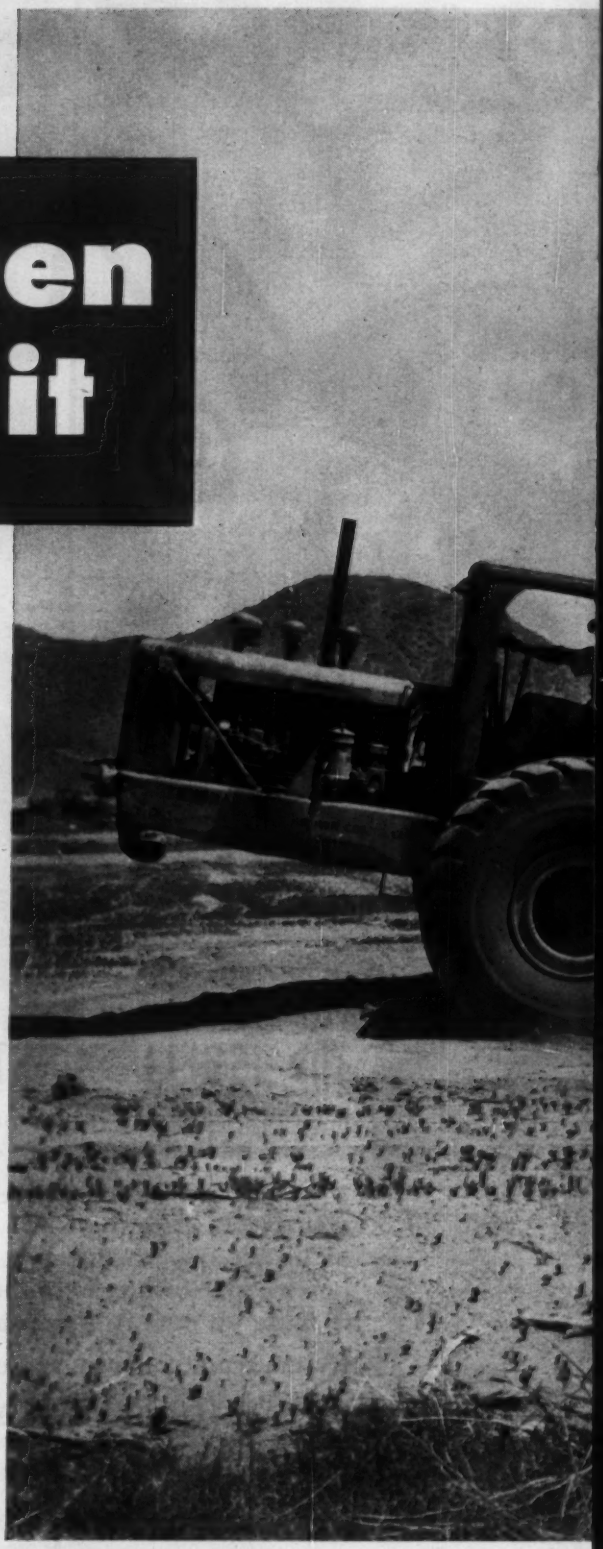

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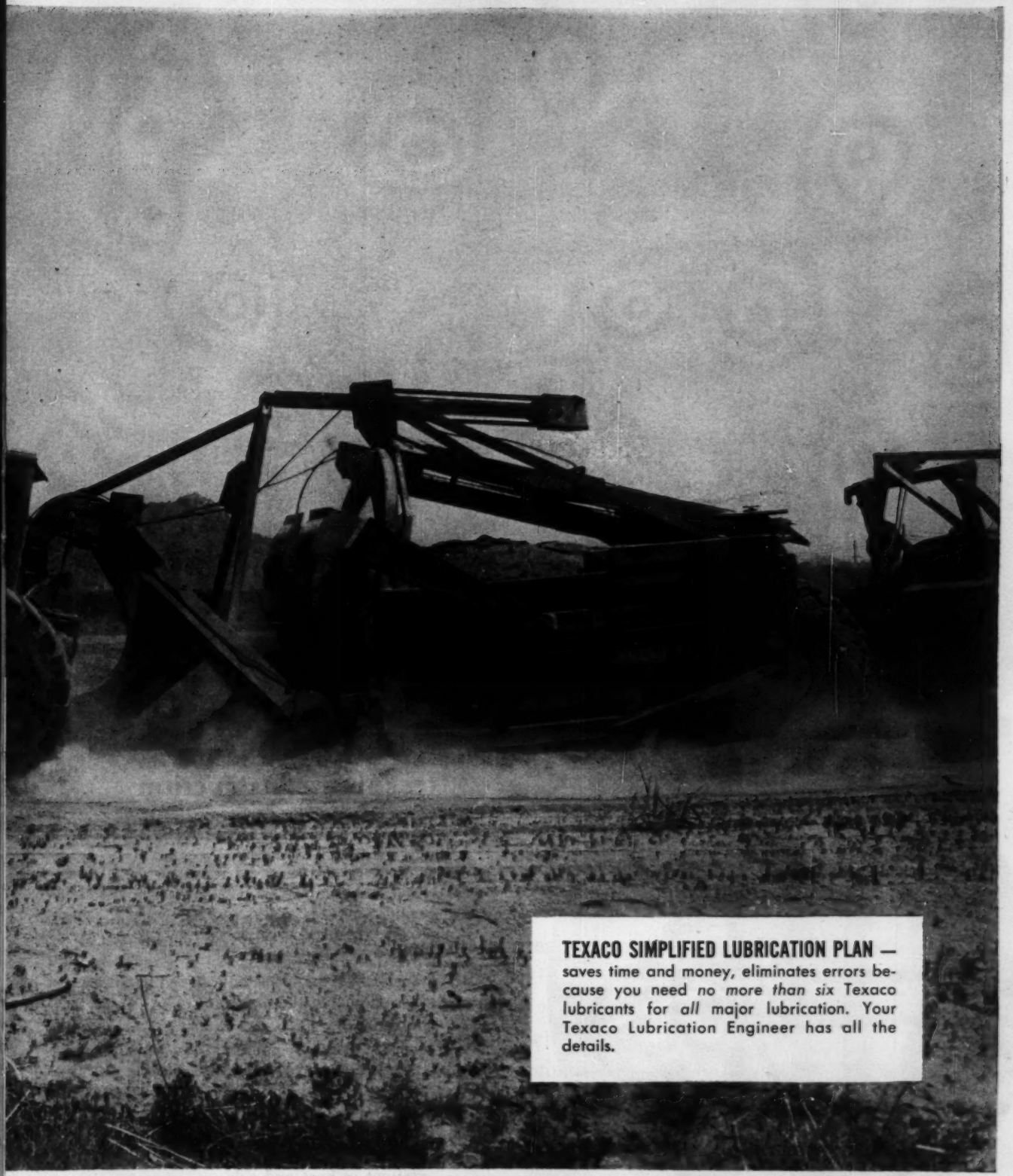

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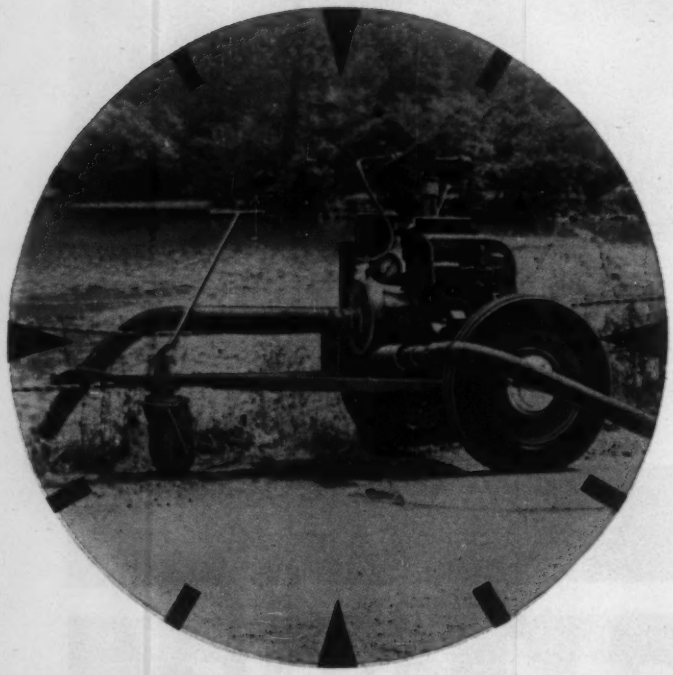

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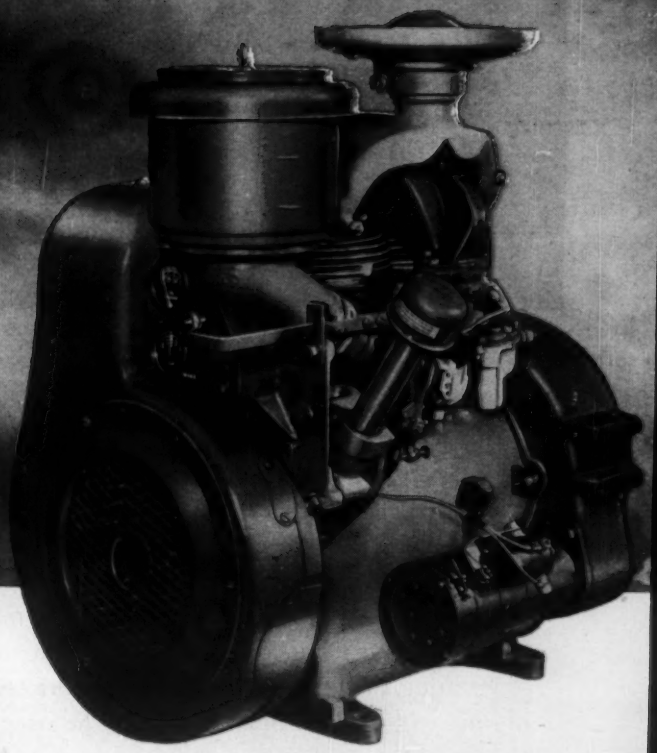

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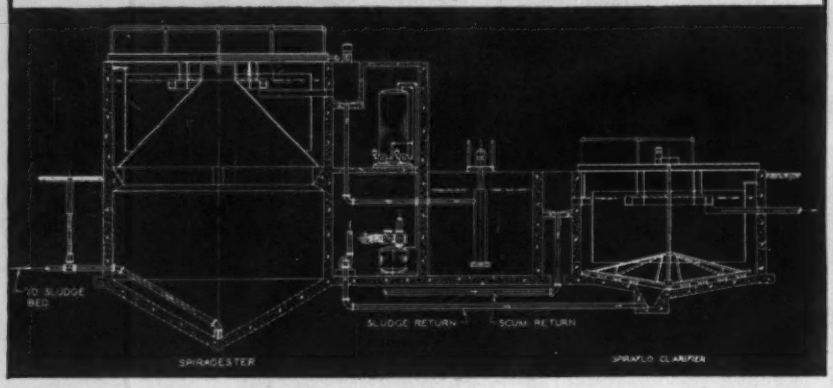

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READER COMMENT

Pozzolans in Concrete

SIR: In his letter (ENR August 4, p. 8), R. E. Lee, assistant civil engineer of the San Francisco Water Department, advocating a more widespread use of pozzolans, states that they may be substituted for as much as 50% of the cement in concrete, but assumes that 25% would be a more likely figure. Based on this figure the effects, he states, would be equivalent to increasing the monthly productive capacity of the cement industry by 5,000,000 bbl.

In order to obtain an equivalent productive capacity of this magnitude, it is first necessary to accept the premise that an average of 25% of portland cement used for all purposes may be arbitrarily replaced by pozzolanic material.

Mr. Lee refers to the publication by Prof. R. E. Davis as a source of information concerning the use of pozzolans, but a careful study of all the available literature on the use of pozzolanic material would indicate a degree of enthusiasm on the part of Mr. Lee that is not entirely warranted by the facts.

The Bureau of Reclamation has had considerable experience in the use of pozzolans, and in their Concrete Manual, Sixth Edition, 1955, point out that pozzolans are of various composition, with widely varying properties, some of which may introduce adverse qualities into the concrete.

Pozzolans are generally recognized as beneficial in reducing the heat of hydration in mass concrete, or controlling an alkali-aggregate reaction, but under certain conditions the cement content of a given mix may actually have to be increased beyond the amount necessary in a mix without pozzolanic material in order to maintain required strengths.

Our own investigation into the use of pozzolanic materials as a cement replacement indicates a reduction of strength at early ages, which would discourage their general use in structural concrete, particularly thin-wall sections where form-stripping and construction must proceed according to schedule.

Generally, concrete made with pozzolans requires more thorough curing than that without to obtain equivalent resistance to freezing and thawing, and there may be a higher incidence of shrinkage cracks in concrete made with the use of pozzolans.

In order to qualify as a substitute for cement it must be demonstrated

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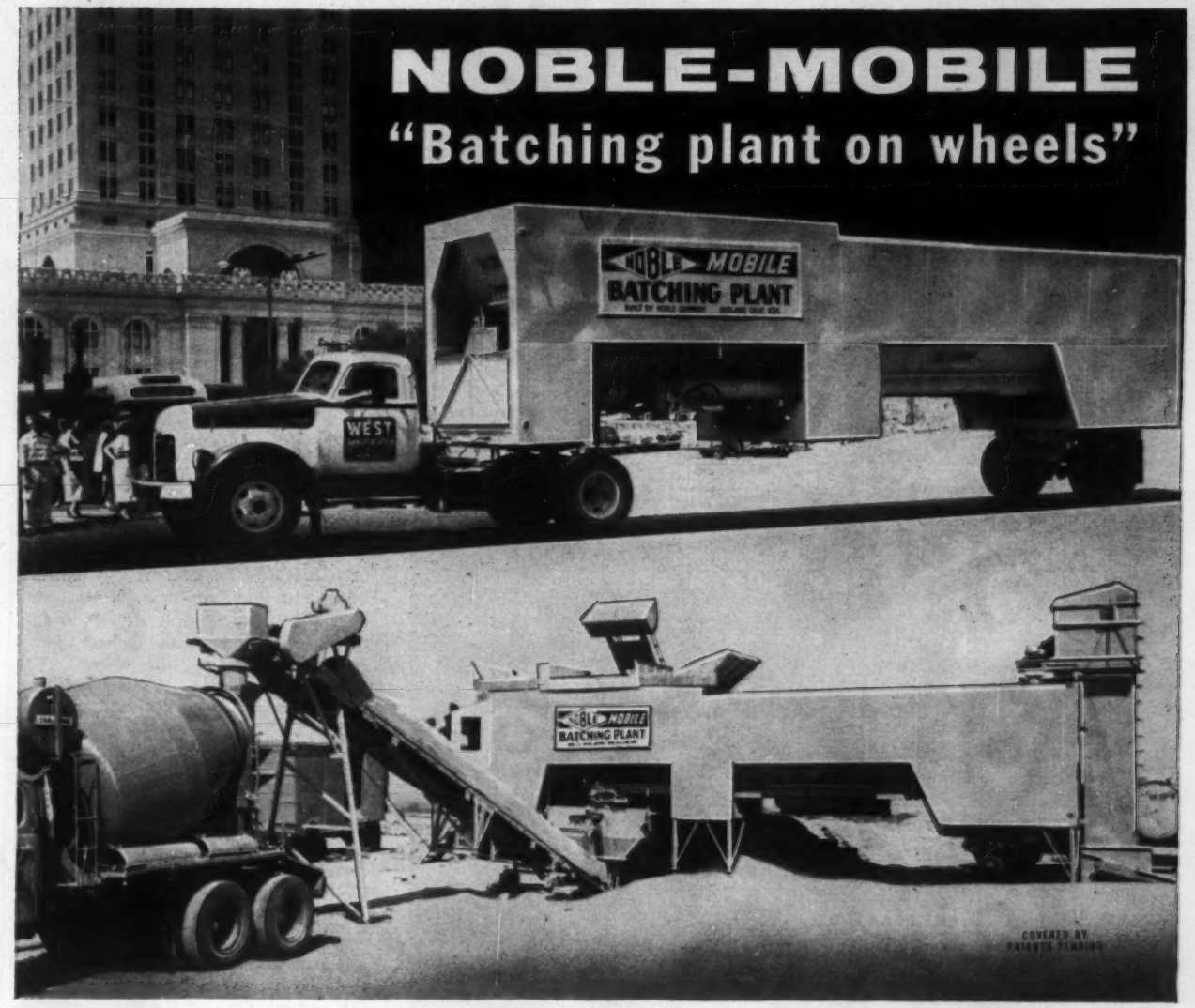

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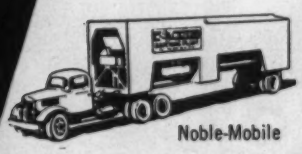

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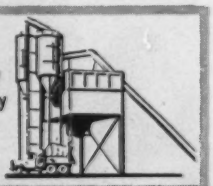

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*DFPA—Douglas Fir Plywood Association, Tacoma, Wash. is a non-profit industry organization devoted to product research, promotion and quality maintenance.

READER COMMENT

that the end product is equivalent or better than a comparable mixture without pozzolan, and that equivalent strength and durability are obtained at comparable ages.

The uses of pozzolans are not always entirely beneficial, and the adaptability for a particular use should most certainly be carefully investigated before arbitrarily using them as a cement replacement.

ELLIOT A. HALLER, PRESIDENT
The Haller Testing Laboratories, Inc.
New York, N. Y.

George Did It

SIR: ENGINEERING NEWS-RECORD of July 28, 1955 has on pages 45-46 a well deserved article concerning veteran contractor Henry George. The article would have been a little more complete had the construction of a complete naval supply depot by Clifton & Applegate and Henry George in 1942-43 been mentioned. This depot was built for about $9,000,000 which was about $1,500,000 less than estimated costs.

The construction included over 2,000,000 sq ft of covered space, with all utilities, roads and paved streets, yard and access railroad tracks, central heating, storm and domestic sewer system, sewage disposal plant, water wells and tank. It also included shops, administrative buildings, cafeteria, marine barracks, and residences for key officers, and complete fencing with gatehouse. While the nine months for construction of the Spokane Coliseum is indeed excellent, attention is invited to the fact that in 1942 the above mentioned contractors had a complete supply depot ready for use in less than six months after field work was started, and the entire job was completed in nine months except for a portion of the central heating plant, which did not cause any inconvenience for temporary heating installations were provided during interim.

V. J. ENGLUND
Supervisory Engineer
Naval Supply Depot
Spokane, Washington

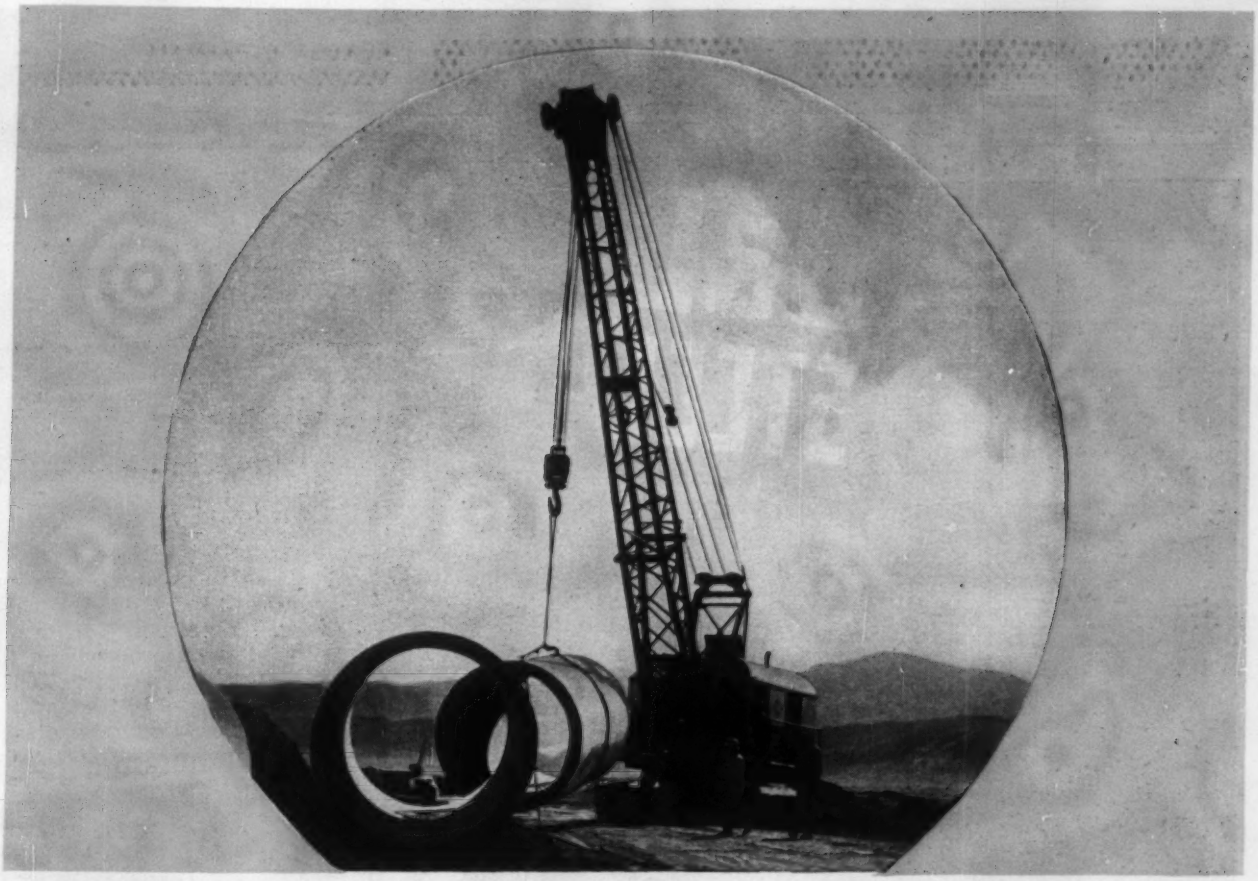
CALENDAR

New England Water Works Association, Lake Placid Club, Lake Placid, N. Y., Sept. 18-22.

International Road Congress, Dolmabahce and Yilditz Palaces, Istanbul, Turkey, Sept. 26-Oct. 16.

Building Research Institute, conference on metal curtain walls, National Academy of Sciences, Washington, D. C., Sept. 28-29.

American Public Works Association, congress and equipment show, Milwaukee, Wis., Oct. 2-5.



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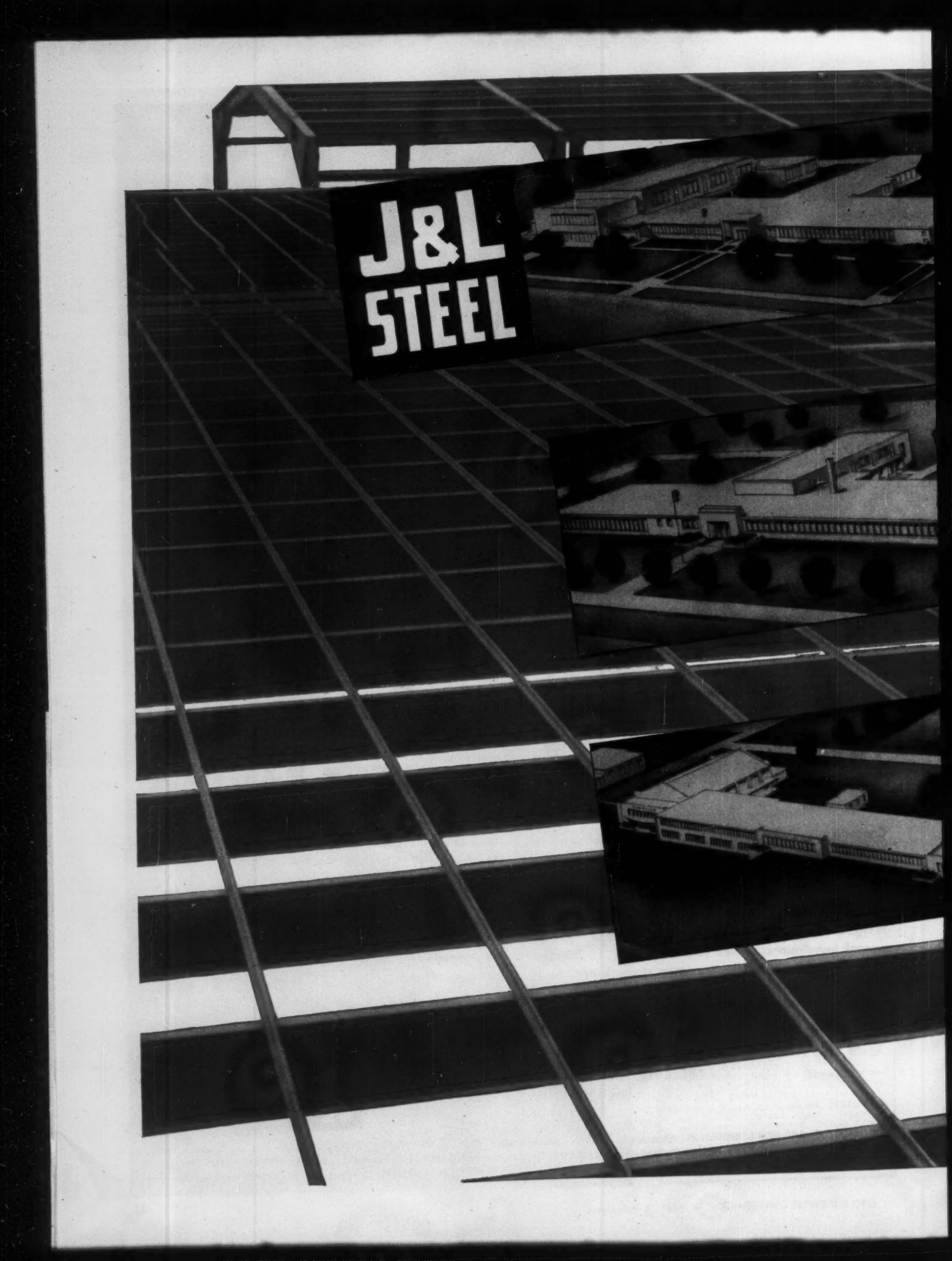
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Repeated use often provides the best evidence of how well a product performs. That's why J&L is proud of the record being established by lightweight J&L Junior Beams in Southern Illinois. Architect D. Clarence Wilson of Mt. Vernon first specified Junior Beams for the $800,000.00 Nashville High School, Nashville, Illinois in 1953. Since then Mr. Wilson has designed 33 schools ranging from the $80,000.00 Petty District Elementary School to the $975,000.00 Greenville High School at Greenville, Illinois.

In every one, J&L Junior Beam roof purlins have been specified. The reason as stated by Mr. Wilson, "Today's school must not only be attractive, functional, permanent and safe . . . it must also be economical to build. Junior Beams have proved a good choice to keep material and handling costs to a minimum."

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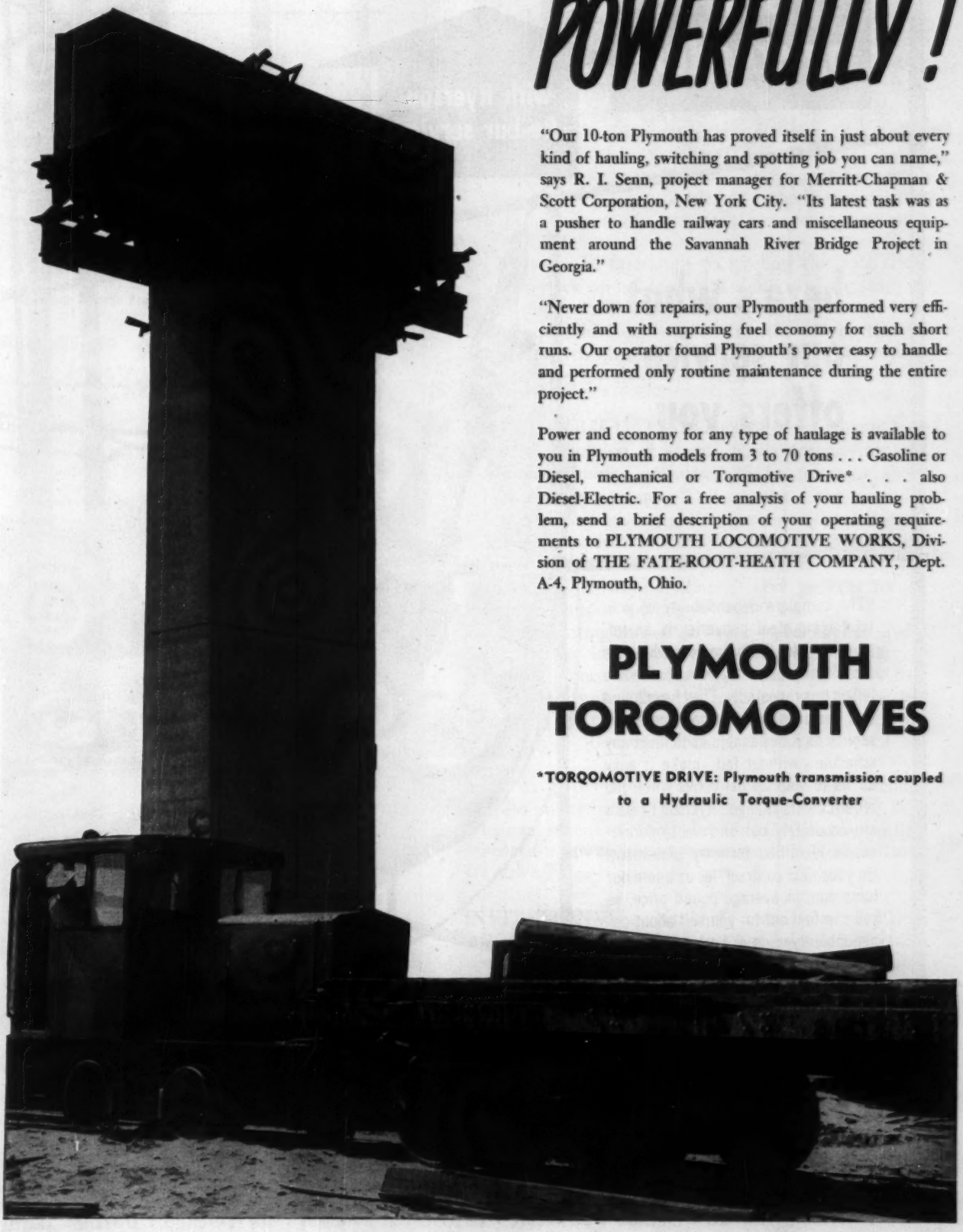

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

A FAVORITE TOPIC—Criticizing engineering education has come to be almost a favorite pastime of late, with most critics tending to decry the inadequacy of today's schooling as measured against present needs of the profession. The criticism to be taken most seriously has come from employers of recent graduates—but just how prevalent is their dissatisfaction on this subject?

An ENR spot check shows a representative group of employers pretty well satisfied with the product that is being turned out by today's engineering education (Page 21.).

It would be interesting to see how this spot check would stack up against a real thoroughgoing study of the problem. With the American Society of Civil Engineers dickering hopefully for the wherewithal for such research, there's new significance in what employers have to say about our schools.

NOT YET OUT-DATED—Though developments leading to realization of atomic power are moving at a fast pace, there's no reason to be reluctant about hydro power ventures. At least, that's the assurance the AEC has given to the Bureau of Reclamation. Three of its 10 new starts in the current fiscal year (pages 21 and 22) will include power facilities as will eight of the Army Engineers' new projects for an ultimate output totaling 1,436,000 kw.

Commenting on the AEC's assurance that new hydro projects are in no danger of becoming obsolete in their lifetime, Reclamation Commissioner Wilbur Dexheimer noted that the bureau is required by law to have power phases of its projects pay out, with interest, in 50 years—which is shorter than their life span.

"No matter how cheap a new fuel may become, hydro power will still fill a need," Commissioner Dexheimer remarked. And, he added, "You can utilize water for power whenever you want it. You just turn a valve."

INVITATION—The National Association of Home Builders has decided to test the so-called "Geneva spirit" by extending an invitation for Soviet housing experts to visit the U. S.

NAHB would like to have Russian guests on hand for dedication of its new National Housing Center in Washington on Oct. 3, if possible. The center—which will become a reservoir of information on American homebuilding design and construction techniques—would serve as a good jumping off point for a proposed tour of homebuilding operations that would include a dozen cities. The Russian visitors also would be given an opportunity to visit plants that manufacture building materials.

WROUGHT IRON PUTS A STOP TO CORROSION ON THE NEW JERSEY TURNPIKE

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Time-proved wrought iron blast plates are used to protect structures on all railroad crossings. Wrought iron conduit, over 120,000 feet of it, serves and safeguards the underground electrical power distribution systems for toll plazas, service areas, and utility buildings. And to assure long-life service in storm drainage lines, the designers applied the extra durability of wrought iron to this job in many of the sections.

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WASHINGTON OBSERVER

Flood insurance is being pushed again by the federal government. Housing Chief Albert Cole will meet on Thursday with representatives of a half dozen insurance companies. The big problem: How to write flood coverage at rates that property owners can afford to pay.

Administration officials want to find a way of reducing the risk so that protection can be offered at a reasonable price. They are asking the companies to re-examine their positions on reinsuring the casualty companies on their flood liabilities, assuming a percentage of the risk, and spreading the risk among several hundred companies.

•

St. Lawrence Seaway tolls will be a bit higher than expected to cover the costs of navigation aids. This is the ruling of the Budget Bureau, which has given responsibility for constructing and maintaining navigation equipment to the St. Lawrence Seaway Corp. On other waterways in and around the U. S. shoreline, the U. S. Coast Guard does the job, and gets money from Congress to pay costs.

The Seaway Corp. will set its tolls to pay the costs. The aids will include lights, buoys and shore markers along the international section of the river, some 100 miles or so from Lake Ontario to below Massena, N. Y., the Coast Guard may end up doing the job, but as a private agent or subcontractor for the corporation, rather than as a public service agency.

•

Another round in the Hells Canyon Dam dispute is on. The National Hells Canyon Association seeks a rehearing from the Federal Power Commission, which on Aug. 4 announced award of licenses for three low dams to the Idaho Power Co. The association argues the FPC misconstrued the Federal Power Act in voting in favor of Idaho Power. The commission has 30 days in which to answer, and there is little doubt it will maintain its position and reject a rehearing. The proponents of the high dam say they will then take the issue to the U. S. Circuit Court of Appeals.

•

Contractors and their unions can agree to ban use of non-union goods on a job, but the unions can't enforce the contract.

That's the gist of a new National Labor Relations Board decision on "hot cargo" contracts. In the case before it, involving a Los Angeles AFL carpenters union and, Havstad and Jensen, the contractors, the NLRB said that union agents were acting illegally—under Taft-Hartley—when they told union men on the project not to install non-union doors.

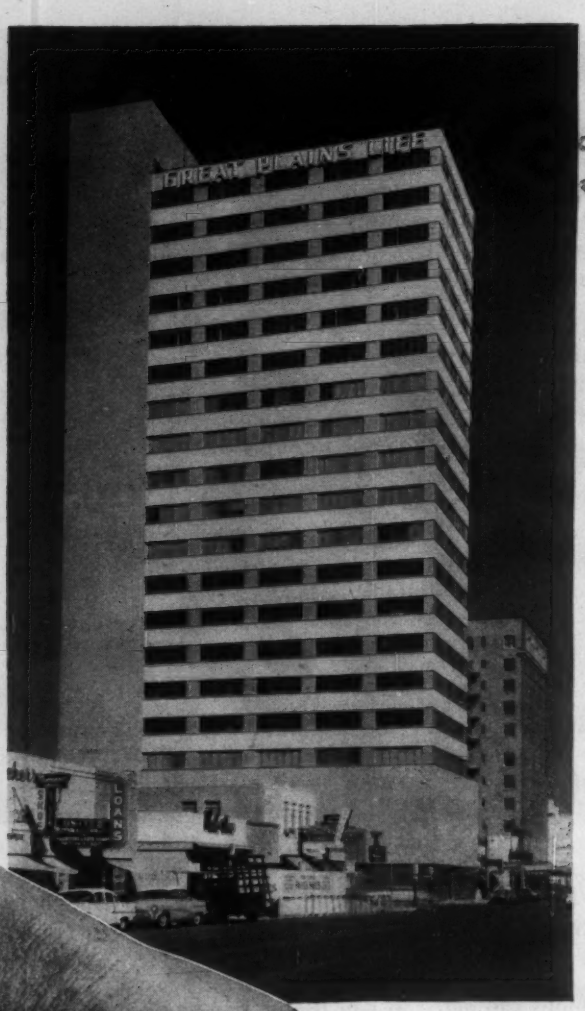
The Taft-Hartley's ban on enforcement doesn't apply to employers. They can enforce their "hot cargo" agreements by not buying or installing the banned goods. But under board rulings, the union has to stay away from any enforcement actions.

A strike to enforce such a "hot cargo" clause is also illegal, the board has said in earlier cases.

•

The housing industry is a bit uneasy about the effects of new mortgage credit restrictions. The impact will show up in housing starts next spring—and present forecasts generally agree there may be a drop of from 50,000 to 100,000 as a result of the tougher rules on down payments and length of mortgages. Trouble will show among builders who had a small backlog of approved projects when the new FHA and VA rules went into effect on July 30. The builder who had a new project ready to go, and had got approval for the financing before the crackdown won't be hurt.

The reduction in starts will be in the cheaper housing market. Lower income families will be strapped to make the larger down payments. Interest rates and even the higher payments resulting from shortening mortgages from 30 years to 25 years will have little effect.



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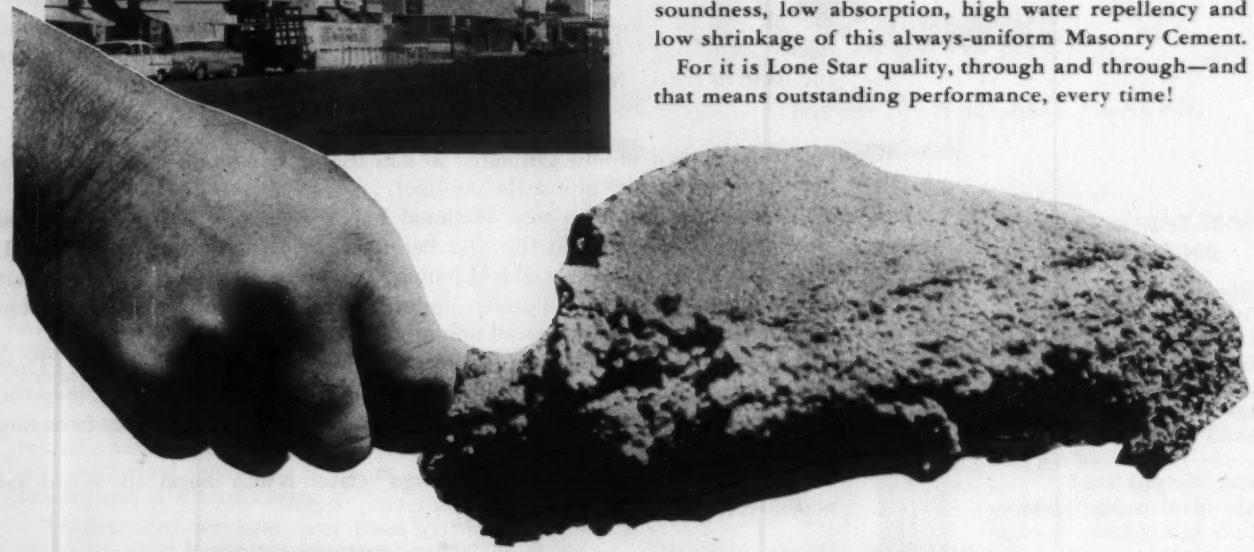

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ENR Asks Employers:

How Good Are the Graduates?

Are the educators of engineers doing right by the employers of engineers? It's a question for almost constant discussion of late.

The pessimistic impression generally heard from educators, presumably exacted from employers, is that today's graduate of the engineering schools is not up to the tasks assigned to him.

Yet a spot check on the situation among some of the larger employers of inexperienced graduates indicates the opposite might be true. All firms responding to a survey by the ENR Research Department said they generally find today's engineering graduates capable of performing the work required of them.

The real answer is certainly not so definite, nor so simple. Indeed, some of the graduates feel they are capable of more advanced tasks. Perhaps the best conclusion to be drawn from all current criticism of engineering education, including ENR's findings, is that ASCE's proposed thorough-going study of the subject (ENR June 23, 1955, p. 23) is quite in order.

• **Employers give the answers**—ENR's spot check was prompted by the frequently-expressed observation that there is a gap between what engineering schools turn out and what employers of engineers expect. A series of questions was put to employers who were considered representative of consulting and contracting firms and public agencies. The firms were geographically dispersed and varied in size and specialty.

Here is a summary of the findings:

• The eleven organizations responding hired a total of 170 inexperienced graduates this year. About one-third were returning from the armed services.

• These green young graduates were put to work in the offices drafting and designing, with a few doing report writing and other office chores. In the field, the greatest number became instrumentmen, with inspectors and rodmen following in that order.

• In every case, responding employers indicated that they are assigning to the inexperienced employes tasks that call for as much—or more—knowledge than was required in former years.

• There was a 6 to 5 split on whether present graduates are as good draftsmen as those of the past. It was 7 to 4 favoring today's graduate as a surveyor. Employers said unanimously that today's graduate knows more about design and 6 of 11 said he is better trained in writing than previously.

• Asked how long it takes the inexperienced employe to begin to earn his keep, employers' answers varied from "no time at all" to about two years.

The majority of the employers said the break-in time is about the same as in previous years. But three said it is shorter today, and only one said the break-in time is longer than it was formerly.

• The respondent who said the nonproductive, in-service training period is longer today sponsors a formalized one-year training program. Only one other firm among the 11 respondents reported having such a program.

• **General satisfaction**—A request for general observations on the question of fitness of engineering graduates for their first jobs brought these varied comments:

"Standards generally good . . . varies with quality of schooling . . . well prepared for careers . . . need more basic training in fundamentals of self-expression, speaking and writing . . . judgment needs development . . . adjust quickly because of aggressiveness . . . show greater interest in pay, short hours, fringe benefit jobs."

While the answer to the key question in this small study (whether today's graduate is capable of the tasks assigned to him) was unanimously "yes," there remains the question of whether the tasks given to the recent graduate are properly selected to get the most out of today's engineering education.

Complaints about graduates are not hard to find. Neither are complaints from the graduates. Many of them feel they are capable of more than the demands of their early assignments. Such dissatisfactions may not prevail, but they do exist.

How far these dissatisfactions go, how serious they are and what might be done about them by revisions in engineering education: these are the questions still to be answered. And, there is indication now of increasing belief that the place to study the adequacy of engineering education—to find these answers—is not in the schoolroom, but in the office.

Federal Construction Upturn

Federal construction spending for the current fiscal year, ending June 30, 1956, will exceed the $5 billion estimated last January. Revised figures issued by the White House and the Budget Bureau now forecast a total of $5.33 billion in construction expenditures, an increase of $330 million over the estimate made early this year by President Eisenhower (ENR Jan. 20, p. 21).

This latest budget review predicts federal construction expenditures will run ahead of the January estimates in several categories including military public works, grants to federally affected school districts, natural resources, grants for federal-aid highways, and the Tennessee Valley Authority.

Other types of federally financed construction are expected to boom after this year, according to the Budget Bureau. One reason is that Congress has voted money to start a large number of new rivers and harbors, flood control and reclamation projects. Congress went far beyond the Administration's recommendations. The President asked for funds to start 41 projects; Congress voted initial funds for 109, with a total estimated cost of $1.8 billion.

Expenditures on the new projects will be comparatively small in the current fiscal year, but they will increase substantially in the following years.

• **Quick allocations**—The Budget Bureau has allocated funds for all the new starts included in the President's budget requests to Congress and in addition has made apportionments for all of the "unbudgeted" new starts requested by the various construction agencies.

The Reclamation Bureau received fund allocations for all 10 of its new starts early last month. The list included five projects that had not been included in the President's budget requests.

The Corps of Engineers also has re-

ceived speedy apportionment for every new start submitted, including the full list of budgeted items and all top-priority projects that were not budgeted, such as Tuttle Creek Dam in Kansas.

• **Other programs expand**—The budget review also noted other factors that favor a growth in federal construction spending, such as the $42-million additional grant-in-aid authority Congress voted for local airports (part of a four-year, $250-million program) and a $274-million increase in funds for urban renewal grants and for college housing and public works.

Projects and money available for new contracts during the fiscal year are more important to construction than the actual cash expenditures for the 12 months. Civil works projects, for example, are financed on a year-to-year basis by annual appropriations. A big contract for a civil works project can be awarded although there is only enough money on hand to pay the first year's bills.

Here is a rundown on appropriations for the major federal construction programs this year:

• **Military construction**—Because military construction is moving faster than was expected in January, estimated spending has been stepped up 8% in the current fiscal year. An estimated 500 projects are fully funded and eligible for contract award this year. The Air Force has the biggest program. It expects to let contracts for $1.2 billion in construction by June 30, 1956. This program will emphasize operational facilities such as runway improvements and bases. A close second in importance will be family housing, which will be a major program for all of the armed services.

• **Atomic Energy Commision**—AEC has an unobligated balance of $380 million that can be committed to new construction contracts this year. In addition, about $50 million in subcontracts will be awarded by prime contractors for AEC projects already under construction. AEC's total construction expenditures for the year may reach $500 million.

• **Army civil works**—Contracts for 97 new projects will be advertised. Construction spending during the year will exceed $400 million. New money available for construction totals about $445 million.

• **Reclamation**—Bids will be taken on 10 new starts with the first year's work to be financed out of appropriations included in the $150 million voted by Congress in the last session.

Here's complete tally of appropriations for construction in fiscal year 1956

	In millions of dollars		
	Fiscal '54	Fiscal '55	Fiscal '56
ALL CONSTRUCTION	$2,159.4†	$2,730.1†	$4,090.9
MILITARY CONSTRUCTION			
Air Force—airbase construction	240.8	630.0	994.3
Army—military bases	0.0	.....	485.1
Civilian components	9.1	15.0	31.6
Navy—Bureau of Yards and Docks	0.0	98.0	442.6
Civilian components	30.0	15.0	28.0
Secretary of Defense—military const.	0.0	88.5#	2.3**
CIA—new building	.....	.....	5.5
ARMY CIVIL FUNCTIONS			
Rivers and harbors & flood control	278.7	306.4	406.7
Mississippi R. flood control	51.4	45.5	52.0
Other civil functions	2.8	4.7	8.3
INDEPENDENT OFFICES			
Atomic Energy Commission	166.0	110.9	256.3
TVA	183.4	120.0	.....
VA hospitals	38.7	50.5	33.9
NACA	11.4	4.6	12.6
HHFA slum clear & urban redevelop.	20.0	40.0	55.0
Defense Housing	0.0	(4.5)*	.....
GSA—lease purchase design & plan	.....	.....	15.0
American Battle Monuments	8.5	3.5	3.0
Smithsonian Inst.—bldg. plans	.....	.....	2.3
INTERIOR			
Reclamation	116.3	132.0	151.1
Bonneville Power Adm.	38.9	24.3	14.6
Alaska—public works	12.0	9.5	3.0
Roads	14.6	8.0	6.3
Railroad	8.8	2.9	4.1
Virgin Is.—public works	1.0	.....	.....
Bureau Indian Affairs	15.9	14.6	8.0
National Park Service	15.4	14.3	34.0
Other Interior	30.6	34.5	8.4
COMMERCE—BUREAU PUBLIC ROADS			
Federal aid highways	530.0	595.0	640.0
Forest highways	15.0	18.5	21.8
Access roads	5.5	.....	.....
Grade crossing elimination	2.2	.....	.....
Public lands highways	1.8	0.9	2.0
Inter-American Highway	1.0	5.8	63.0
Rama Road, Nicaragua	1.0	1.0	2.0
COMMERCE—CAA			
Federal aid airports	22.7	22.0	27.5
Washington Nat'l Airport	0.4	0.0	3.1
COMMERCE—Other	1.2	0.1	2.8
HEALTH, EDUCATION & WELFARE			
Hospital construction	84.7	96.0	111.0
School construction	125.0	118.5	24.0
Other	4.4	6.6	15.0
AGRICULTURE			
Forest roads and trails	14.5	22.5	.....
Flood control	5.0	7.5	10.0
Watershed protection	.....	7.2	12.0
Other	.....	1.8	0.3
STATE			
State Dept building	.....	.....	1.0
Internat'l Boundary & Water Comm.	6.6	0.3	.....
JUSTICE			
Federal Prison System	0.2	0.0	0.9
LEGISLATURE			
Capital architect	1.0	12.6	18.5
DISTRICT OF COLUMBIA	28.8	39.9	35.0

† Figures don't add up because of rounding; fiscal '55 total includes second supplemental appropriation.
# Incl $75 mil. housing; $13.5 mil. access roads
* Cutback. ** Access roads.

Pelican Island Development Assured

First contract is let for Galveston crossing, a prerequisite for initiating work on $30-million industrial community

Award of a contract in July for Stage I of the work on a bridge to connect Galveston Island in Texas with Pelican Island opened the way for a start on a $30-million project for industrial and residential development of Pelican Island.

Under an agreement between the city of Galveston and the Pelican Island Development Corp., the latter could not start its work until a contract had been let for a major part of the bridgework.

Pelican Island lies north of the Galveston Ship Channel. It is an almost barren area, its sole industry being the shipyard of the Todd Shipbuilding Corp. The first phase of work planned there by the developers is filling an area of 1,200 acres to 10 ft above sea level. This will require dredging 3,000,000 cu yd from outside the harbor line, which in turn will provide a deep channel to the Intracoastal Waterway at the northern tip of the island.

The dredged channel will make available additional deepwater frontage for industrial sites, a barge terminal and yacht basins.

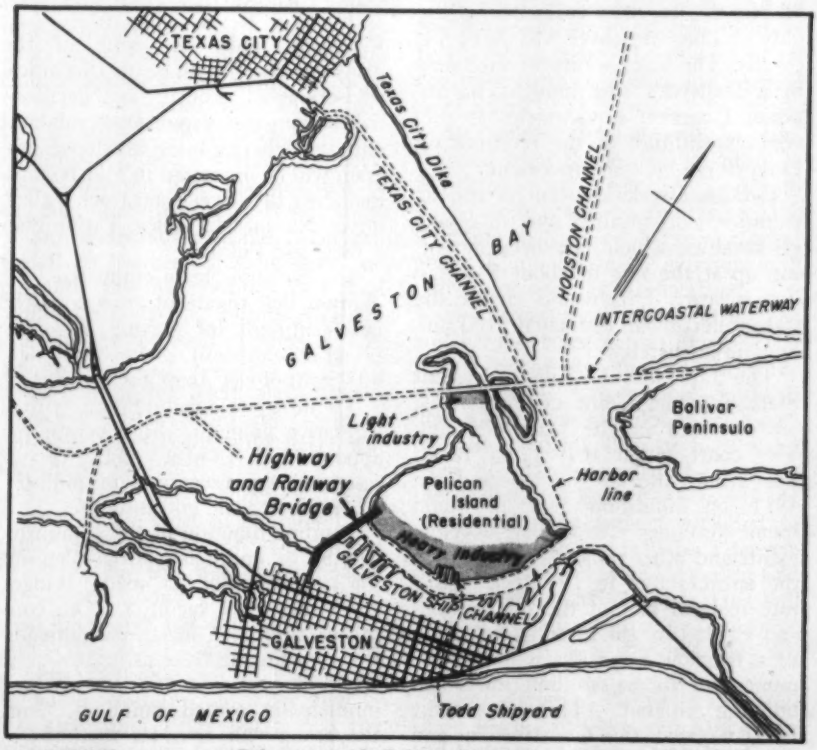
The first phase work also includes a paved highway from the bridge terminus to the northwest corner of the Todd leasehold along the route of a projected six-lane highway to serve heavy industries on that side of the ship channel.

• **Dual-purpose bridge** – The bridge and causeway connecting the two islands will be 8,400 ft long. It will carry a two-lane highway and a single-track rail line. Included will be a reinforced-concrete trestle 2,100 ft long over railroad yards at 51st St. in Galveston.

The water crossing will consist of 3,100 ft of hydraulically placed embankment retained by sheetpiling, 2,100 ft of prestressed-concrete trestle, 900 ft of a steel-girder trestle, and a 200-ft single-leaf bascule bridge at the navigation channel.

Spans in the highway section of the concrete work will be 50 ft, and 25 ft under the railway tracks. Span lengths for the steel girders will be 102 ft.

Prestressed concrete stringers are to be used in the highway spans of the bridge, and hollow prestressed-concrete slabs to support the railway track. Both will be carried on bents formed of 24-in. prestressed-concrete piles capped by beams of the same material.



A BRIDGE to connect Galveston with Pelican Island for railway and highway traffic is the first step in a development program for the latter.

The bridge work is divided into three contracts, the first of which has been let to the Farnsworth & Chambers Co. of Houston for about $3 million. It includes the hydraulic embankment and the reinforced concrete trestle sections complete, the piers for the steel trestle portion, and the main pier for the bascule bridge up to Elev. 10. The bridge fender system is also included.

Contract 2 contemplates the completion of all the remaining superstructure work within the limits of Contract 1 and provides for completion of the steel girder trestles, completion of the main bascule bridge pier, and the bascule bridge span.

Contract 3 includes the complete reinforced concrete trestle crossing of the railroad yards.

This bridge is being built by Galveston County Navigation District No. 1, with Parsons, Brinckerhoff, Hall & Macdonald, New York, as consulting engineer. A. Bahn, Jr., is resident engineer.

Additional construction planned by the Pelican Island Development Corp. includes water and sewer connections to Galveston Island, an adequate source of industrial water, and construction of the rail line, first to the Todd shipyard and ultimately to the east end of the island to serve the area assigned to heavy industries. Streets, power lines and shopping centers for the residential area also are planned.

Engineers for the Pelican Island Development Corp. are the Southern Engineering Co. & Associates, Houston, Texas.

Contract for Seaway Lock Goes to Canadian Combine

A $7.1-million contract for construction of Cote Ste. Catherine Lock and approaches in the Lachine Section of the St. Lawrence Seaway has been awarded to joint venturers Canamont Construction Ltd. and Canit Construction Ltd. The work is to be completed by July 31, 1958.

Cote Ste. Catherine Lock is one of the two locks to be constructed on the river's south shore in the Lachine Section, just upstream from Montreal. Bids will be asked shortly on the other one, at St. Lambert.

The present contract in addition to construction of the lock includes excavation of a navigation channel and construction of dikes to form approaches to the lock. It includes excavation of a turning basin downstream of the lock, construction of regulating works for the control of the water level of the upper reach of the canal and formation of a reservoir pool upstream of the lock.

Traffic Solution

Louisville urged to build four Ohio River Bridges, downtown expressway loop

A sweeping program of traffic improvements, including four new Ohio River bridges and a downtown expressway loop, have been recommended as the solution to Louisville's traffic problems for the next 25 years.

The recommendations were made by Harland Bartholomew & Associates St. Louis planning firm, as part of its three-year $173,000 study of Louisville and Jefferson County.

No price tag was placed on the program. But the planners admit that many of the projects must be regarded as long-range goals and will require state and federal aid.

Major recommendations are:

- An expressway loop around the central business district. It would carry through-traffic, which now accounts for more than half of the downtown vehicular traffic, around the busy office and shopping center.
- Two new Ohio River bridges, two more in the future. Top priority is given to a span that would extend from the proposed Campbell St. Expressway to Jeffersonville. Next on the list is a bridge that would run from about 34th St. to New Albany. The two other bridges, to be built later, would be located at the western and eastern ends of extensions of the Henry Watterson Expressway.
- Two new expressways and two new parkways extending out from the downtown loop. One expressway would go west to the proposed New Albany bridge. The other would run south to Shively. The report urged review of a proposed Seneca Parkway to serve the eastern suburban area. It also suggested a Beargrass Valley Parkway to run southeast to connect with the Henry Watterson Expressway.
- Numerous new streets and roads, both inside Louisville, and out in the country. These would connect existing thoroughfares in new arterial routes.
- Numerous street widenings, overpasses and underpasses.

The firm also called for a drastic change in plans for the north-south expressway, on which construction is to start soon. This artery has been planned to start at the Henry Watterson Expressway and run north to the Ohio River in downtown Louisville, connecting it with Clark Bridge. But the report proposes that the expressway terminate at Chestnut St. and connect with the southern leg of the downtown loop. Through traffic then could use the loop to reach either of the two proposed new bridges.

Probably the most controversial phase of the report is that dealing with the bridges to Jeffersonville and New Albany. Bartholomew terms the Jeffersonville bridge as most needed. The Louisville Bridge commission, however, plans to build a crossing to New Albany first. It seems certain that the New Albany bridge will go up first since the governors of Indiana and Kentucky are expected to sign a contract soon for its construction.

Meanwhile, Kentucky highway officials have agreed to seek federal approval for making Watterson Expressway 6 lanes wide from Preston to Crittenden Drive. The section is now being built 4 lanes wide. But the State Fair Board has asked that Phillips Lane be closed at the expressway approach to the new state fairgrounds. In this case, the additional expressway lanes would be needed to accommodate dislocated local traffic. Federal approval is needed for this change in plan since the U. S. Bureau of Public Roads is putting up funds for the expressway.

California Stakes Its Claim To Tideland Oil, Gas Funds

The State of California has sued for possession of $100 million in accumulated tideland oil and gas royalties.

The State Attorney has filed a petition of intervention in the legal battle over dispensation of tideland oil and gas royalties collected by the City of Long Beach (ENR, April 14, p. 28). The state wants to intervene in a taxpayer's suit brought in Superior Court in Los Angeles to prevent expenditure of the revenues on Long Beach civic improvement.

California seeks one-half of the accumulated oil royalties and all of the gas royalties, which have been mounting up at the rate of about $34 million a year. This would enrich the state coffers by an estimated $100 million immediately.

The state bases its claim on a recent State Supreme Court clarification of law involved in the taxpayer's suit. The court noted that Long Beach was given title to the tidelands in 1911 on condition that it would spend revenues on harbor developments and other projects of benefit to the entire state. In 1951 the legislature released half of the oil revenues and all the dry gas revenues for other uses, to allow Long Beach to use the money for its $40-million municipal building program. This, the court held, violated the Constitution and funds released from the original purpose should revert to the state.

Flood Sequel

City planners recruited to guide reconstruction programs in Connecticut

Connecticut will attempt to recruit some of the nation's top community planners and bring them to the state to help disaster-stricken towns in their rebuilding efforts.

The plan, announced by Gov. Abraham A. Ribicoff, was launched last week when Frederick P. Clark, of Rye, N. Y., a planning consultant, was retained. He will help obtain other planners.

Services of the planners will be provided at no cost to the flood-devastated communities. They will be paid from a state emergency contingency fund of $100,000. The planning and rebuilding program will be handled through the State Development Commission.

The governor said, however, that the initiative must come from the towns because the "state cannot and will not impose its ideas and philosophies on the towns."

Thirteen communities have taken advantage of the offer and have requested planning aid. These include: Waterbury, Torrington, Winsted, Ansonia, East Granby, Putnam, Seymour, Canton, Naugatuck, Thomaston, Beacon Falls, Farmington, Washington.

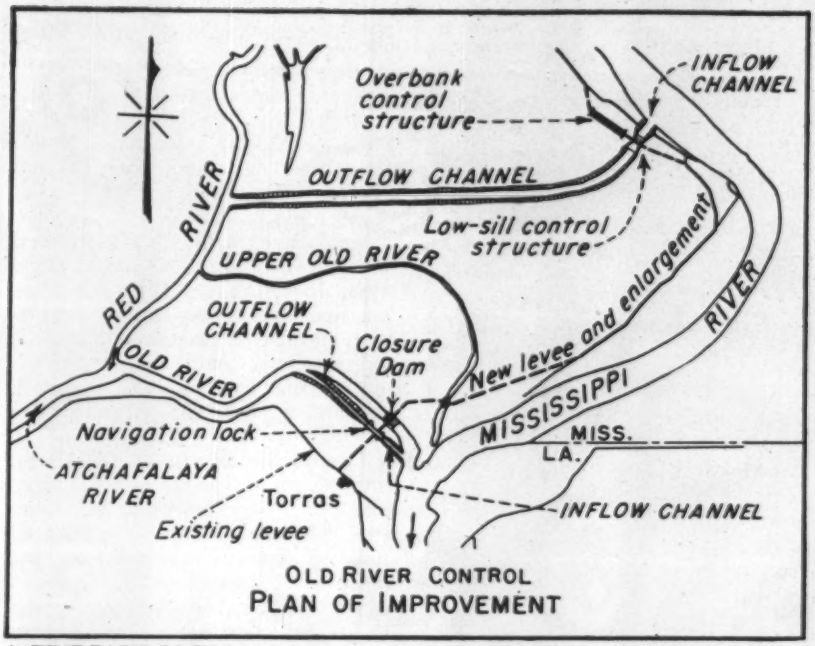
Planners will work in teams to give direct "on-the-ground aid to cities and towns," Ribicoff said.

- **Advisory only**—The work of the planning officials will be on a technical advisory basis. Policies and decisions will remain the responsibility of local officials. The planning assistance program will be organized in four regions, including the lower Naugatuck Valley, upper Naugatuck Valley, Farmington Valley, and Putnam.

The governor again emphasized his opinion that riverfront areas could be better utilized for parking or recreational development, or for more highway right-of-way than for business.

To integrate rehabilitation with a legislative program, the governor has appointed an 18-man committee representing top executives in industry, labor, finance and government.

A prime function of the committee will be to undertake initial planning for reconstruction of roads, bridges, and other state facilities. The committee also will make recommendations for financially assisting towns in rebuilding schools, town roads, and municipally owned buildings. And, the group will consider methods by which the state can supplement federal agencies and relief organizations.



A FIVE-PART PROGRAM devised by Army Engineers will prevent the Mississippi from being captured by the Atchafalaya River. Project plans include a low-sill dam, an "overbank" structure to control the flow at flood stages, a navigation lock, new levee construction and sealing off of Old River.

Wandering Mississippi to Be Curbed

The F. and C. Engineering Co. of Houston, Texas, a subsidiary of Farnsworth & Chambers, Inc., has submitted the apparent low bid of $9.8 million for construction of the low-sill dam in the Old River division control project in Louisiana.

The low-sill dam is the first—and most important—unit of the $47-million project designed by Army Engineers to prevent the Atchafalaya River from capturing the Mississippi through diversion of waters into Old River (ENR April 8, 1954, p. 36).

Old River, only 6 mi long, connects the Mississippi with the junction of the Red and Atchafalaya Rivers some 100 mi above New Orleans. Every year Old River has been stealing more and more of the Mississippi's flow and sending it down the 140-mi Atchafalaya River to the Gulf of Mexico. Unless this growing diversion is placed under control, the Atchafalaya will become the master stream and 313 mi of the Mississippi below Old River will rapidly silt up.

The overall plan, which will take from 8 to 10 years to complete, has three principal features: two control structures on the west bank of the Mississippi about 10 mi upstream from Old River, and a navigation lock connecting the two rivers.

The 577-ft-long low-sill dam is designed to maintain low water flow of the Mississippi River water into the Atchafalaya. This flow is needed in the Atchafalaya to maintain navigable depths and to aid in the establishment of a main central channel.

The low-sill structure will have 13 gate bays, each with a clear opening of 37 ft. Three of the bays will have a sill elevation 5 ft below Gulf level to handle the extreme low water flow. The other bays will have a permanent crest 10 ft above Gulf level. All of the bays will have movable weirs to be placed on top of the sills to cut off the flow entirely at low and median river stages.

An inflow channel will be constructed from the low-sill structure to the Mississippi River. A 7-mi outflow channel will be built from the structure to the Red River at a point about 12 mi above its junction with Old River and the Atchafalaya.

The second major phase of the plan will involve construction of an "overbank" control structure adjoining the low-sill dam. This project—3,400 ft long with 97 bays—is designed to control the overbank flow of high water from the Mississippi to the head of the Atchafalaya Basin.

A third main project included in the overall program will be a navigation lock which is to be located in Old River near the Mississippi. This will be built so that the growing commerce through Old River won't be disrupted.

Later phases of the project will include levee work between Old River and the site of the control structures, and sealing off Old River.

Delaware Dams Helped; Governor Asks Another

Flood-stage figures for the Delaware River's recent rampage have come out of Pennsylvania with word that these new all-time records might have been even higher but for New York City's two completed water supply reservoirs in the basin.

The late August flood crested at 23.91 ft at Port Jervis, N. Y., higher than the 175-year record of 23.1 ft set in 1903, but reportedly 2 ft lower than it might have risen without control of the two reservoirs upstream. Pepacton and Neversink Reservoirs impounded 18.5 and 5.9 billion gallons respectively during the flood, controlling runoff from more than 15% of the drainage area above Port Jervis.

These findings have led Pennsylvania's Gov. George M. Leader to ask immediate legislative consideration to construction of proposed Wallpack Bend Dam lower down on the Delaware. This dam was a unit of the Incodel Plan for developing water supply of the entire Delaware Basin, and recently has been subject of legislation that would permit its construction by Pennsylvania, with a 30% interest from New Jersey.

It is estimated that existance of Wallpack Bend Reservoir, drawn down as would be expected in late August, might have delayed flood peaks downstream by six hours and cut the crest at Trenton by about 3 ft.

Gov. Leader reported that on his instructions to M. K. Goddard, State Secretary of Forests and Waters, an engineering firm would review Incodel plans for the Wallpack Bend Reservoir.

N. Y. Board of Education Changes Bid Procedures

From now on, the New York City Board of Education will pre-qualify bidders on all of its construction projects in an attempt to get "more substantial" bidders, according to Joseph Meehan, contract clerk for the board. Until now, pre-qualification in New York City has been required only by the New York City Housing Authority.

Ten days before the Board of Education advertises for bids on a job, it must, under the new amendment to the state education law, advertise to notify bidders of pre-qualification requirements. Once qualified, a contractor will remain on the active list for a period of one year. Contractors will be qualified on the basis of similar job experience and financial responsibility.

NEW TEACHING TECHNIQUES are passed along to college instructors during a summer graduate course in highway engineering. Conducting the seminar is Robley Winfrey, acting chief of the personnel and training office, U. S. Bureau of Public Roads.

A Boost for Highway Engineer Teaching

This fall college engineering instructors from 23 states and two foreign countries will return to their campuses with a new picture of what is going on in the highway field.

The 26 instructors have just completed the most ambitious teacher-training course in advanced highway engineering ever offered by the University of California's Institute of Transportation and Traffic Engineering.

For eight weeks the instructors divided their time between standard graduate work and seminars led by nationally-known highway engineering experts. They talked to top road men and educators. They made use of ITTE's laboratory facilities at Richmond. And they took field trips for close looks at design and construction techniques used in California's stepped-up highway construction program.

• **Financial aid**—How was the university able to offer its course to such a large group of teachers? And how was it able to get such wide geographic coverage? The answer lies in grants-in-aid. These—amounting to $650—were given each of the 24 U. S. participants by the Automotive Safety Foundation and the Highway Research Board of the National Academy of Sciences.

The ITTE staff members—and the two supporting organizations—hope that they have started a "chain reaction" in engineering education. They expect the reaction to begin when the instructors return to their classrooms and stimulate highway engineering education throughout the country. This, in turn, should eventually help meet training needs posed by rapidly-accelerating highway construction.

The institute, staffed with some 25 specialists in the various phases of the highway field, is ideally equipped to give teachers a comprehensive briefing in new highway science and practice. It was set up in 1947 by the California legislature as a research and instruction facility for highway design, construction and operation. Besides training both undergraduate and graduate students, it takes its know-how into all parts of the state through road schools for state and county highway officials.

• **Professional advice**—The summer session was based on two 3-unit courses. One was Highway Planning and Economics, taught by Prof. Donald S. Berry, ITTE's assistant director. The other was Traffic Engineering, taught by Prof. Ralph A. Moyer, an ITTE staff member. The first course covered highway planning surveys and the application of their results in highway programming. It also took up economic analysis and highway financing, and urban traffic studies for planning city improvements. The second course investigated analysis of traffic movement characteristics and methods for making traffic studies.

Weekly seminars emphasized new techniques in teaching highway engineering. They also dealt with engineering practice, and planning. The graduate courses themselves served as examples in teaching techniques. Professor Moyer, for instance, made a practice of assigning three students to lead discussions for each topic during class periods.

Seminars drew heavily on engineers from the California Division of Highways. In addition, ITTE staff members led discussions and demonstrations on highway taxation and finance, soil mechanics and bituminous research, road surface characteristics, drainage, highway and street lighting, and highway bridge research.

To give the instructors a first-hand glimpse of California construction, field trips supplemented classroom work. On one 1,100-mi trip the class observed freeway construction between San Francisco and Los Angeles as well as examining the geometric design and operation of Los Angeles freeways. It also visited ITTE's facilities on the campus of the University of California at Los Angeles. There, the institute studies psychological factors in traffic planning.

Another trip—to Sacramento—allowed the class to study California's use of punch card tabulation in highway planning. This demonstrated techniques of machine analysis of information gathered on such subjects as traffic and costs.

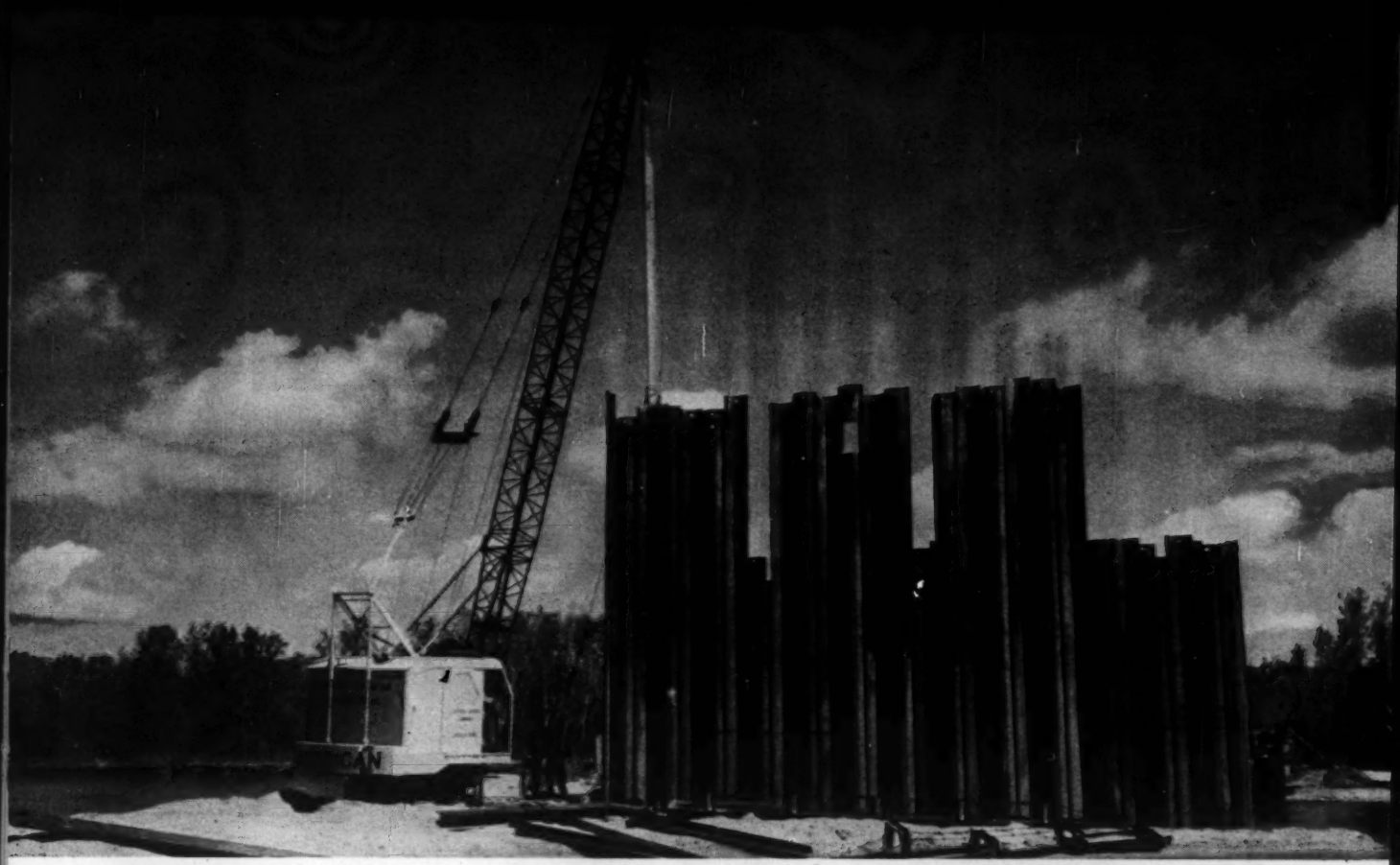
Seattle Approach Approved For Lake Washington Bridge

The Washington State Toll Bridge Authority has reached an agreement with Seattle on the western approach to the projected $20-million floating bridge across Lake Washington. As a result, construction contracts may be awarded by Jan. 1.

The Seattle approach, as originally planned by the authority called for construction of a highway about a mile due west to connect with the proposed Tacoma-Seattle-Everett toll road. City officials objected that this would not comply with a 1953 state law requiring construction of approach arterials into downtown Seattle.

Under the new agreement between city and state officials, the project will include the first unit of a highway extending from the bridge to the central business district. Tolls will be continued on the bridge until approach arterials can be built into downtown Seattle.

The new bridge will cross the lake east of Seattle (ENR July 22, 1954, p. 23). It will be similar in design to a 15-year-old span located several miles south, which is composed of 300-ft-long floating concrete pontoons anchored to the lake bottom.



STEADY, SURE HANDLING was necessary to set and drive the sheet steel pilings for the coffer dams. The American above is finishing the coffer dam before driving. On the U. S. Highway 77 bridge one mile south of Fremont, Nebraska, the American out-produced four other cranes, *some with higher-rated capacity*. The American's versatility enabled it to reach and lift many kinds of loads under adverse working conditions.

Bridge contractor gets...

20% MORE PRODUCTION WITH AN AMERICAN

An American 300 Series Crane showed unusual versatility and tremendous lifting power under difficult conditions during a highway bridge project on the Platte River in Nebraska recently. The American worked alongside four other cranes on this job and produced 20% more than any of the other machines, according to the job superintendent of the Capital Bridge Company contractors.

Making the coffer dams required setting and driving sheet steel pilings down through the river bottom to a hard clay underlay. Then, after excavating inside the coffer dams, thirty-two 41-foot 10-inch H-beam pilings were driven into the hard clay to form the footings for the ten pier foundations used in the 1,350-foot bridge.

The ability of the American Crane to perform permitted the operator to line up his sheet pilings fast and accurately.

"MOST POWERFUL for its rated capacity," says Al Goebel, operator for the Capital Bridge Company, of the American 300 Series Crane. "I've operated a lot of them," he says, "but this new American 300 Series is the easiest of all to handle." Anti-friction bearings in the American Crane's brake linkage cut leg effort of the operator in half and boost production accordingly.

WORKING WITH AMERICAN, Capital Bridge found another important advantage in the ease with which the machine can be transported from one project to another. They found that the American Crawler Crane can be moved over Nebraska highways *without special travel permits* which cut their lost time and considerably lessened routine "red tape". For factual, detailed information on how American Crawler and Truck Cranes can boost production on your jobs, see your American Distributor, or write American Hoist & Derrick Co., St. Paul 1, Minnesota.

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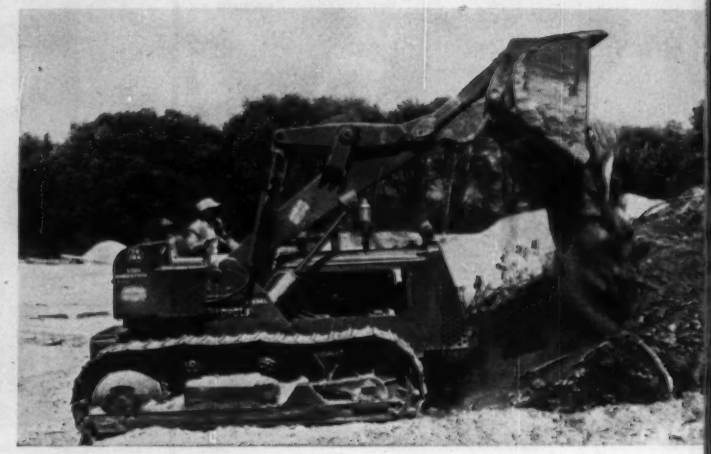
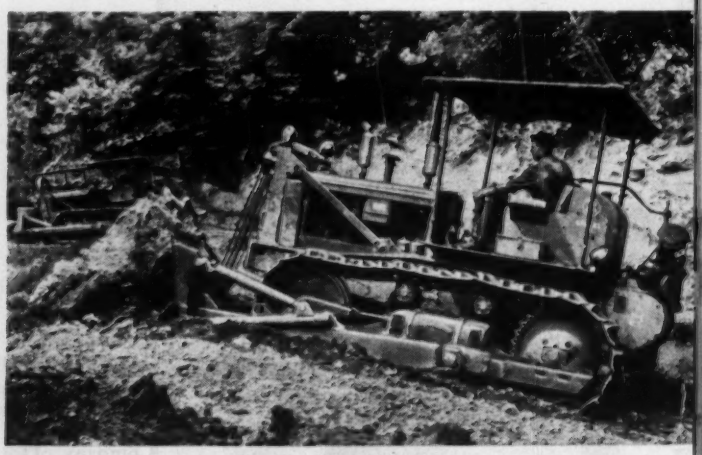


"EVERY LOAD'S A PAYLOAD"—"My International-Drott TD-18A Skid-Shovel is built for the operator's comfort. I know, because I'm the operator. It has 360° visibility which no other loader has. Every load is a payload." *No other outfit built gives you the TD-18A's combination of power, visibility and responsive controls. No wonder TD-18A handling ease turns "skinners" into high-producing operators throughout the day!* V. S. Steffes, Owner, Batavia, Illinois.

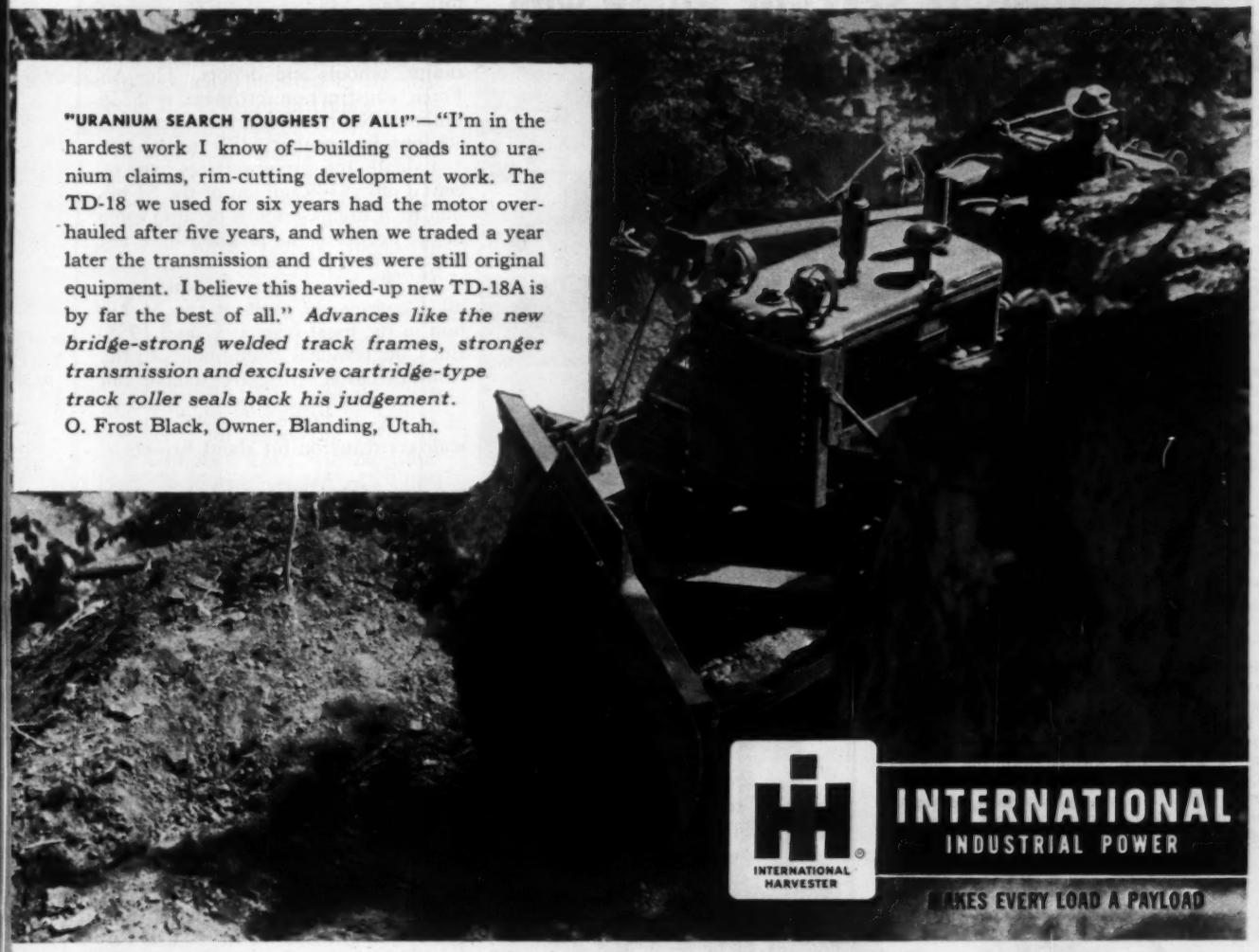
"OPERATORS FIGHT FOR NEW TD-18A"—"The TD-18A's were always good—fast, trouble-free performance and low operating cost made me money. The new TD-18A is stronger and really planned for the man in the seat. It has operators fighting for it." *Big, wide, comfortable cushions; hydraulic steering control boosters, and levers are conveniently grouped on the roomy, non-skid deck!* M. B. McKee, Chickasha, Oklahoma.



"LESS FATIGUE TO STRIP MORE COAL"—"There are two outstanding reasons why I like my new design International TD-18A. First it's designed to strip rugged terrain. And second, the operator can do more with less fatigue. The extended tracks enable working steep terrain with maximum production and safety." *Tough jobs, like coal-stripping, prove the TD-18A excels in ample new gear train strength, too!* Elmer Phillips, General Manager, Little Beaver Mining Corporation, Beckley, West Virginia.

Report on the Decisive Difference

TD-18A Performance



"URANIUM SEARCH TOUGHEST OF ALL!"—"I'm in the hardest work I know of—building roads into uranium claims, rim-cutting development work. The TD-18 we used for six years had the motor overhauled after five years, and when we traded a year later the transmission and drives were still original equipment. I believe this heavied-up new TD-18A is by far the best of all." *Advances like the new bridge-strong welded track frames, stronger transmission and exclusive cartridge-type track roller seals back his judgement.*
O. Frost Black, Owner, Blanding, Utah.

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Ease into foam-rubber-padded, panoramic-vision seat and see the *decisive difference*. Try new finger-tip power steering, and other big *job-easing incentives* for boosting production, as developed only by International. Prove TD-18A *full-power traction*—note, too, how the gear train is beefed-up to transmit 103 drawbar hp, and then some! Measure what new *300% stronger track frames* mean for *full-capacity performance* under slam-bang conditions. Compare how new *cartridge-type track roller seals*, and other International *downtime-prevention engineering*, beat anything else on tracks. Ask your nearby International Industrial Power distributor for a new TD-18A demonstration.

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THE ECONOMICAL SEWAGE PUMP with the *NON-CLOG impeller!*

This WEIL Screenless Heavy Duty Non-Clogging Sewage Ejector is ruggedly built for years of trouble-free operation. WEIL Pumps of this design are still operating satisfactorily after 25 years of service.

This unit is completely factory assembled, economical to install — only one piping connection is required. Pre-assembly and factory testing insure LESS installation time and no "call-back" servicing.

Inherent in the design of this pump is an ample reserve of strength to meet the most severe conditions. The ease and simplicity of installation and the record of many years of trouble-free operation make this pump the logical choice with the engineer, contractor and owner.

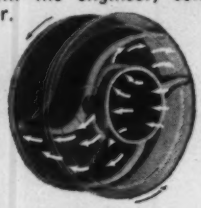

Fig. C-9001

This Two Blade NON-CLOG Impeller is the most important part of the screenless non-clog sewage pump. Not only does it effectively handle large diameter solids but it also passes rags and stringy material of various lengths which are washed into the sewage pit. Pumps with this impeller successfully handle difficult pumping jobs such as waste from public toilets, canning plants, hospitals and industrial installations.

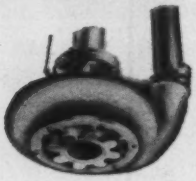

Fig. C-9021

This rugged pump casing with wide waterways permits unobstructed passage of the maximum solids handled by a non-clog impeller.

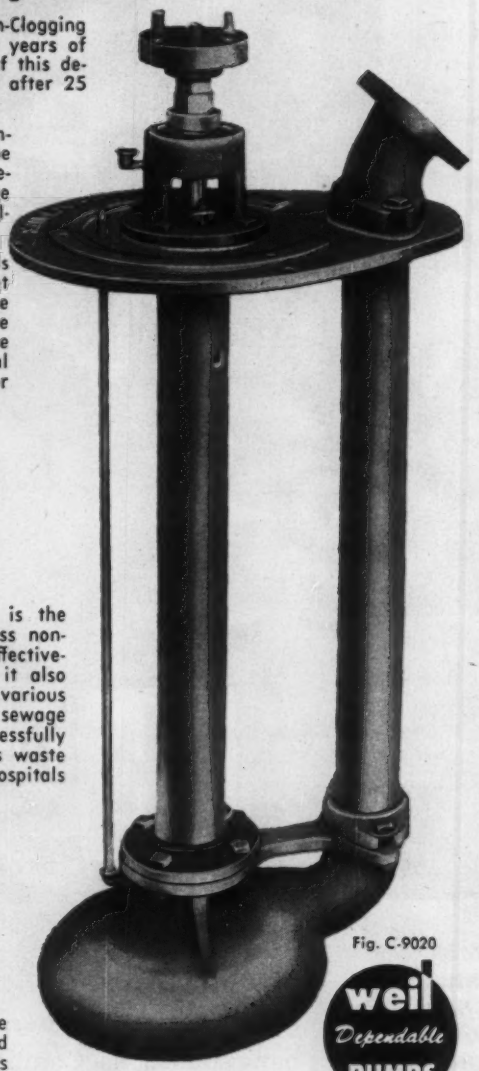

Fig. C-9020

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Reserve Facilities

Military services embark on $1-billion expansion

A special $1-billion plan to expand military reserve training facilities over the next five to seven years is in the planning stage.

The program, which is in addition to other planned federal work (see page 21) stems from a new military reserve law which would more than triple the size of the trained reserve forces.

The Army estimates it will need $597 million worth of new armories, camps, schools and depots. The Air Force construction estimate is $256 million. Navy and Marine Corps will account for another $178 million.

To date, the armed services have received only $109 million of the $1-billion total from Congress because some of the details of the program have not been worked out yet.

The Pentagon originally planned to ask Congress for most of the $1 billion in the fiscal years 1957 and 1958. But Congressional amendments to the Administration's military reserve bill will slow down the scheduled build-up of the reserve forces and defer large-scale construction for about two years.

• **Army**—Plans call for 3,141 new armories, rifle ranges, ordnance repair shops and depots, amounting to $509 million; 279 weekend training camps, amounting to $75 million; and 17 new summer training camps amounting to $13 million.

• **Air Force**—Construction of new facilities will account for $214.2 million. Another $41.1 million would be spent for replacement of obsolete or rundown areas, and for additions to some training facilities. For the most part, the work would include new schools, aircraft maintenance shops, hangars, taxiways and runways.

• **Navy**—The Navy's construction program would include 16 new Naval Reserve training centers and additions to 12 "inadequate" training centers and 34 small electronic facilities. For the Marine Corps Reserves, 77 new training facilities would be required.

Fill May Replace Trestle On 12 Miles of Lake Crossing

The engineering department of Southern Pacific Railroad Co. is making tests to determine the feasibility of using rock fill to replace 12 mi of wood trestle on its Lucin cut-off across Great Salt Lake, Utah.

It is estimated that the project

would cost from $35-$38 million. A fast tax-write-off was approved by the Office of Defense Mobilization.

The 30-mi crossing now in use was completed in 1903 at a cost of $8 million. It consists of 18 mi of double track over fill, and 12 mi of single track over trestle. If the trestle is replaced with fill, the 12-mi stretch can be double-tracked.

First Contract Is Awarded On Canadian Hydro Project

Dawson, Wade & Co. Ltd., of Vancouver, B.C., has been awarded a $4.9-million contract for construction of the rock-fill dam involved in the first phase of the $19-million Upper Campbell Lake hydro project.

The British Columbia Power Commission project, which will merge Upper Campbell and Buttle Lakes into a 30-mi-long reservoir, is being pushed ahead to meet rapidly increasing power demands on Vancouver Island (ENR March 31, p. 64).

The Vancouver firm, in association with Maco Corp. of California, will start work immediately so that the commission can store water by 1956.

The dam, to be located on Campbell River 2 mi below the outlet of Upper Campbell Lake, will be 1,800 ft long, 36 ft wide on top and 1,000 ft thick at the base. Its construction will require more than 2,000,000 cu yd of earth and rock.

The dam will impound 800,000 acre-feet of water by raising the lake level 79 ft. It also will firm up 126,000 kw generating capacity at the downstream John Hart and Ladore Falls plants, and provide 63,000 kw at the Upper Campbell Lake site.

The second stage of construction on the hydro project will add another 30 ft to the dam height and include installation of a 52,500 kw generating unit. This will back water into Buttle Lake 15 ft over its normal level and form the reservoir.

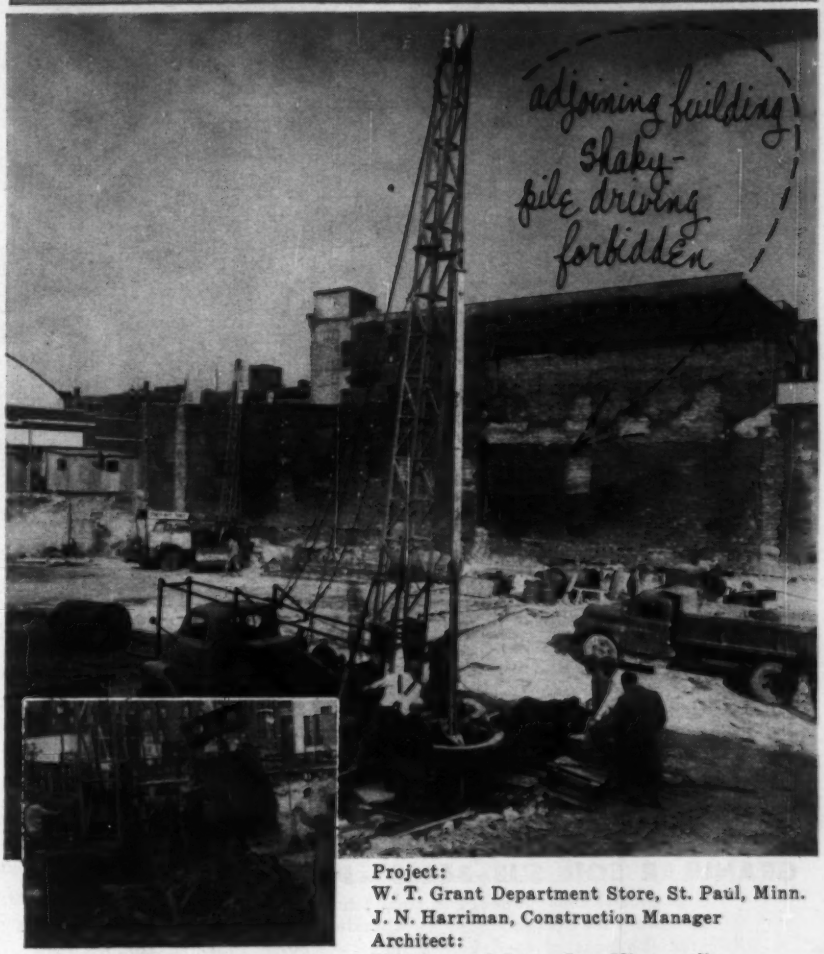
Shopping Center Going Up On Indianapolis Outskirts

Construction of the $7.5-million Eastgage Shopping Center on U.S. Highway 40 at the eastern edge of Indianapolis got under way last week.

When it is completed late in 1956, the center will include 56 stores and shops, parking space for 3,000 cars and a 350-seat auditorium.

Work on a second shopping center at the northeastern edge of the city is slated to start early next year. L. S. Ayres & Co. and William H. Block Co., two of the leading department stores in Indianapolis, will be the major occupants.

ANOTHER PROBLEM SOLVED BY SPENCER, WHITE & PRENTIS



Project:
W. T. Grant Department Store, St. Paul, Minn.
J. N. Harriman, Construction Manager
Architect:
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A foundation going down 44 ft. to bedrock was required on this job. But soil contained much soft clay and the city authorities would not permit pile-driving, fearing that vibrations might make the adjacent building unsafe.

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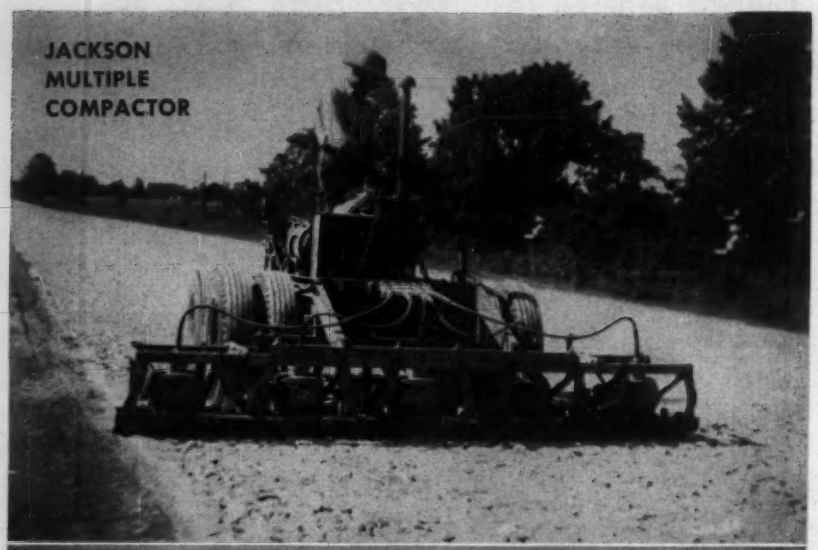

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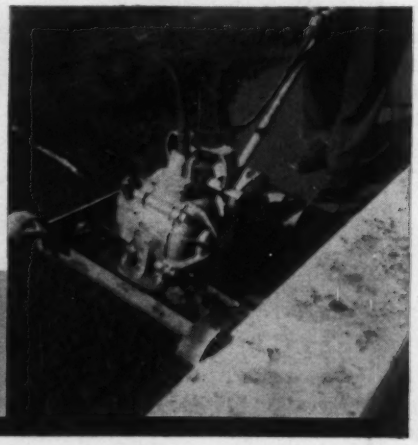

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Sewerage Program

Works costing $15 million slated for Syracuse area

The Ondondaga Public Works Commission will open bids Sept. 21 for the first segment of a $15-million program for construction of sewerage facilities for the metropolitan Syracuse, N. Y., area.

Later this fall, bids will be asked on separate contracts for a pumping station, a force main and digestion tanks, and a control house.

The Sept. 21 letting will be for 7,500 lin ft of trunk sewer, with an estimated cost of $750,000. Work on this stage of the project is scheduled to get under way in October.

Early this year, the Onondaga Public Works Commission, responsible for overall planning of sewerage facilities in the county, inaugurated the design of trunk sewer and treatment plant facilities for the newly formed metropolitan Syracuse Treatment Plant District and the West Side Sanitary District.

• **Construction outlined**—The program for the two districts includes construction of a 50-mgd primary treatment plant and a 6-mi effluent force main to serve the major portion of the City of Syracuse and the suburban West Side Sanitary District; trunk sewer and pumping facilities to serve the West Side Sanitary District; and modifications of an activated sludge treatment plant now serving the Ley Creek Sanitary District.

The county construction program, scheduled for completion in 1959, will provide trunk and treatment facilities that will enable towns in the metropolitan Syracuse area to start work on badly needed laterals.

The Onondaga Public Works Commission has retained O'Brien & Gere, Syracuse consulting engineers, to design the facilities.

Monorail Transit Test Started in Houston Park

Preliminary work has been started in Arrowhead Park in Houston, Texas, on a test section of a monorail rapid transit system proposed for that city. The test section is to be 830 ft long and will consist of 15 towers 26 ft high of "inverted J" design to carry the monorail with a 51-passenger car. The car is to have a clearance of 14 ft above ground.

This pilot project is privately financed, sponsored by Monorail, Inc. of Houston, Texas. Francis J. Niven, Houston, is consulting engineer.

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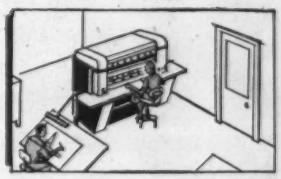

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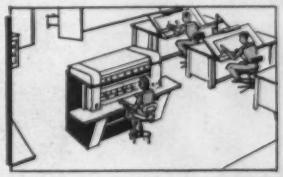

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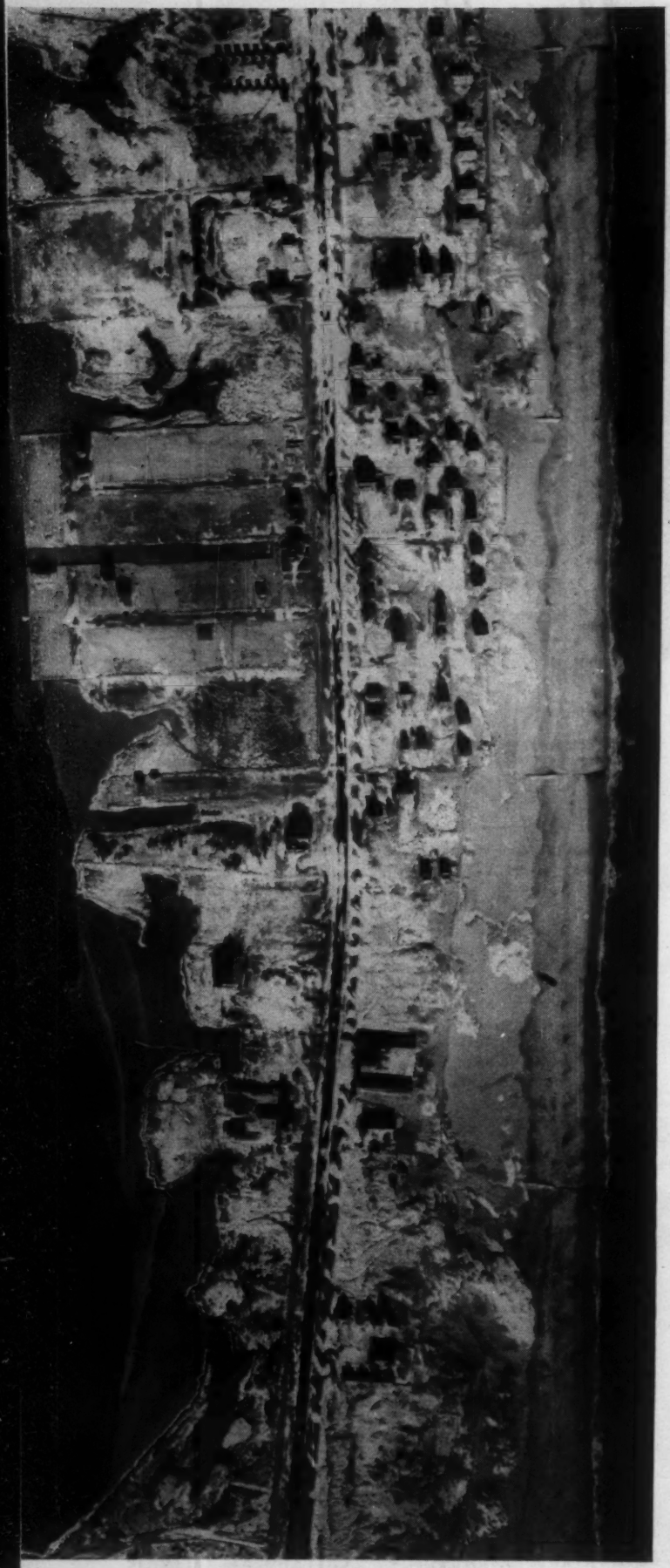
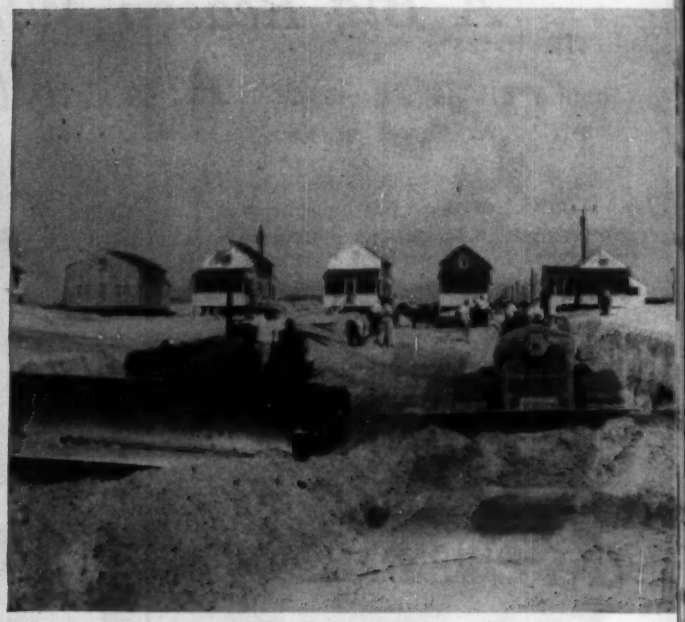




START is timed for low tide, when bulldozers in tandem cut 2-ft deep trench, pushing sand seaward.

How to Build a Beach

With exactly 31.5 miles of actual ocean front land within its official borders, the State of Maryland has long been determined not to lose an inch to the Atlantic Ocean. And state engineers are succeeding not only in holding the beaches but in building them bigger, at costs and with methods so cheap and so easy that they are worth study by possessors of much more ocean-front real estate.

Using nothing but beach sand, asphalt, two bulldozers, a couple of trucks, manpower—and great ingenuity—the state is building groins that work and last at the cost of about $10 per foot of length. Previous groins of wood have cost $80 a lineal foot, or more.

The proof exists for anyone to see at the state's playground area of Ocean City, where a program of building the new type asphalt groins has produced acres of new beach. And what's more—has held the beach against the worst that the ocean and the wind can do.

A large part of the credit for the work goes to one man—Walter C. Hopkins, now deputy chief engineer of the Maryland State Roads Commission—and to theories that he and others have worked out after study that dates back (in Hopkins' case) to 1923.

In a nutshell, the theories are these:

1. Any groin for beach protection and buildup should be impermeable.

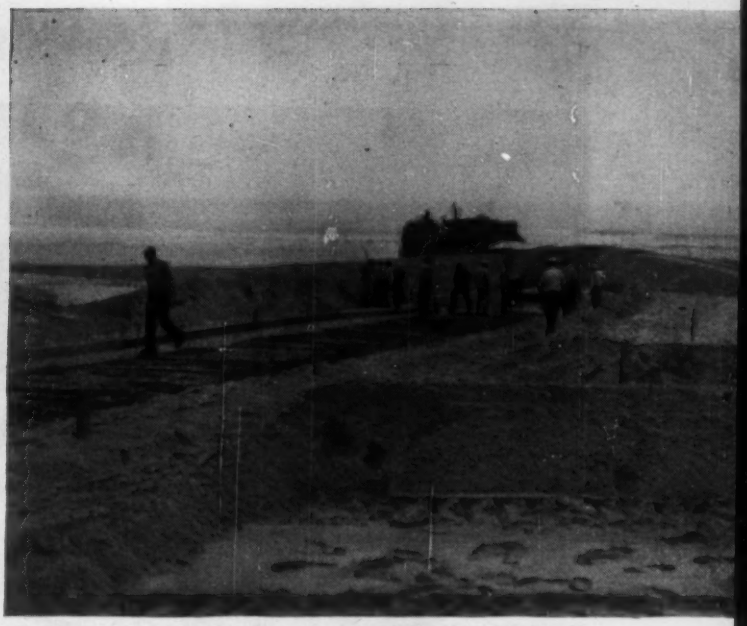
2. The groin should be as low in the water as possible—preferably about two feet below mean high water, so that it will provide, in effect, a settling basin for waterborne sand.

3. The groin should be built with as few sharp edges as possible, and in such a way that the water can flow over it smoothly.

• **Genesis**—Although the groins as they are now being built are actually so simple of construction that they can be built with ordinary road equipment and unskilled

OCEAN CITY (right) is only 840 ft wide at its widest point. Asphalt groins are almost invisible after few weeks of operation.

STEP 2—Sand removed from trench becomes a cofferdam, designed to protect work on tip of groin at water level.



STEP 3—Airplane landing mats go in to give traction for trucks, and boards for side forms are staked into place.

at Economy Prices

labor (in Maryland prison labor has been used), their development was of course no simple, easy matter.

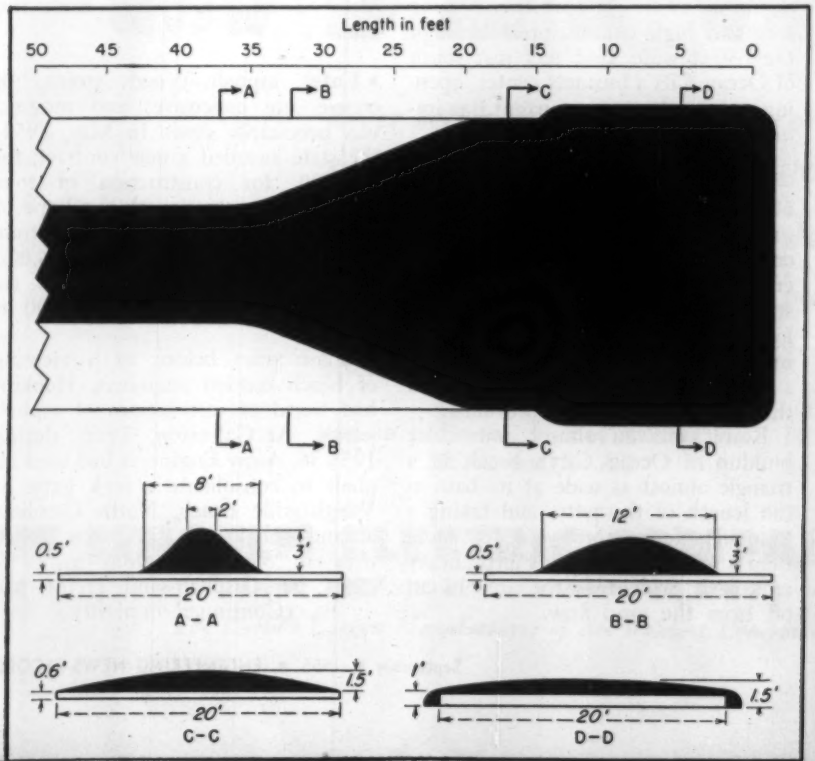
A bit of geography and some little history is necessary to set the scene.

Almost the entire length of the so-called DelMarVa Peninsula (occupied jointly by Delaware, Maryland and Virginia) is bounded by a long, narrow barrier reef of sand, running almost due southward from the southern shore of Delaware Bay to the mouth of Chesapeake Bay.

Varying in width from a few hundred feet to perhaps two miles, this sand reef encloses within it a continuous body of shallow, brackish water.

In the years since state lines were established, ocean

STEP 4—First load of hot-mixed asphalt-sand is dumped, through water that has seeped in. Placement is done by hand.



FINISH—Coming up the beach toward dune-line, groin is shaped into triangular section. Landing mats are removed as construction proceeds.

WITHIN A WEEK, groin is getting hard to find under quick covering of tide and wind deposited sand.

Beach Building at Economy Prices

communities—most of them of tiny size—sprang up along the beaches, where first fishermen and later vacationers built homes on the windblown sands facing the roar of the surf.

Perhaps the largest of these is Ocean City, where the fine sand beaches attracted vacationers as far back as the 1880's. Ocean City's population—also typical of the area—varies between about 2,000 in winter to nearly 100,000 at peak of the summer season.

Constant erosion of the beaches, however, was a problem, and in 1923 the State Roads Commission—interested because of a road that runs the length of the Maryland section of the sandspit—assigned young Walter Hopkins, then connected with the bridge department, to see what could be done.

• **Lessons**—Starting with the then conventional wood groins some of which can still be found on ocean beachfronts—a double row of piling, interwoven basket fashion with brush and timbers—and careful observation of the key factors of wind and littoral currents, Hopkins came up with the key theories that were to govern almost all the state's future work on beach protection and buildup:

• The permeable groins didn't and couldn't work satisfactorily, because they provided too many points of scour for water action.

• There is a veritable river of sand, carried by a southward-flowing littoral current, running a relatively few feet offshore from the low tide line along the full stretch of Maryland's abbreviated shoreline.

• Permanent-type fittings such as bolts are a much more important factor in the life of a solid wood groin than is the wood itself. First failures in ordinary type groins usually occur after fittings have rusted away, permitting the structure to become loose.

Following the last of these lessons, Maryland has for many years now used bronze bolts on its wood groins —and reports no failures.

• **Demonstration**—Graphic demonstration of Hopkins' two basic theories came out of a major disaster—a hurricane in 1933. At that time, raging seas and high winds ripped through the 650-ft wide sand reef just south of Ocean City's business center, opening a channel into Sinepuxent Bay immediately to the west.

Determining that the new channel —providing an outlet to the bay some 60 miles above the old outlet—would improve the quality of bay water and create new fishing and oyster breeding grounds, the Corps of Engineers constructed rock jetties 1,200 and 600 ft long to protect the new opening. They incorporated within the northern jetty a part of an impervious wood groin that Maryland had built previously.

Result was an almost immediate buildup of Ocean City's beach in a triangle almost as wide at its base as the length of the jetty, and taking a triangular form northward for more than a mile. South of this jetty, heavy erosion is evident as the area is cut off from the sand flow.

"All you had to do," says Hopkins, "was to stick some sort of a proper barrier into the sand river flowing just offshore—and you had a beach."

Encouraged, the state appropriated more money for further remedial work, and the wood groins began to extend northward along the beach, gradually developing according to Hopkins' theories, to a low, straight contour, several feet below high water line, fitted with bronze bolts and heavily creosoted timber.

Long and careful observation of the wind and water developed a pattern of groins placed roughly every 400 ft northward from the inlet. By the end of 1953, these groins had been built northward as far as 26th Street, about 2 miles northward from the inlet.

• **Enter asphalt**—Wood groins, of course, are expensive, and progress was necessarily slow. In May, 1954, the state awarded a new contract, for $61,000, for construction of four more of the groins, with the hope of reaching the Delaware line some time in the future. Costing roughly $15,000 each, these groins took about six weeks to build to their full 200 ft length.

Some years before, at a meeting of beach erosion engineers, Hopkins had heard of installations of asphalt jetties. At Galveston, Texas, during 1935-36, Army Engineers had used asphalt to consolidate a rock jetty; at Wrightsville Beach, North Carolina, a sand-asphalt mix had been placed over an old wood groin in 1948; eight pure asphalt-sand groins had

(Continued on p. 40)

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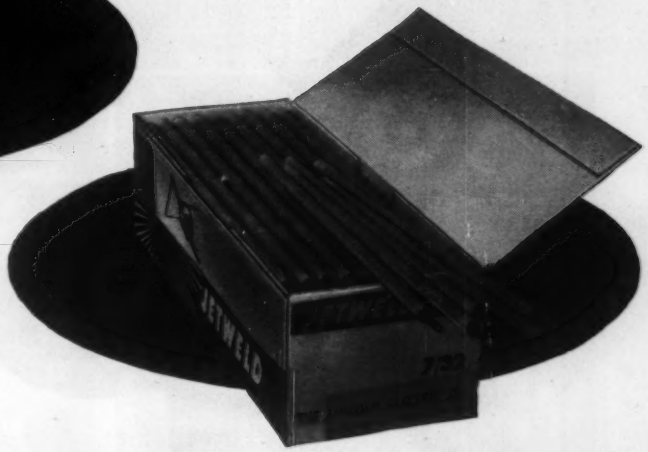

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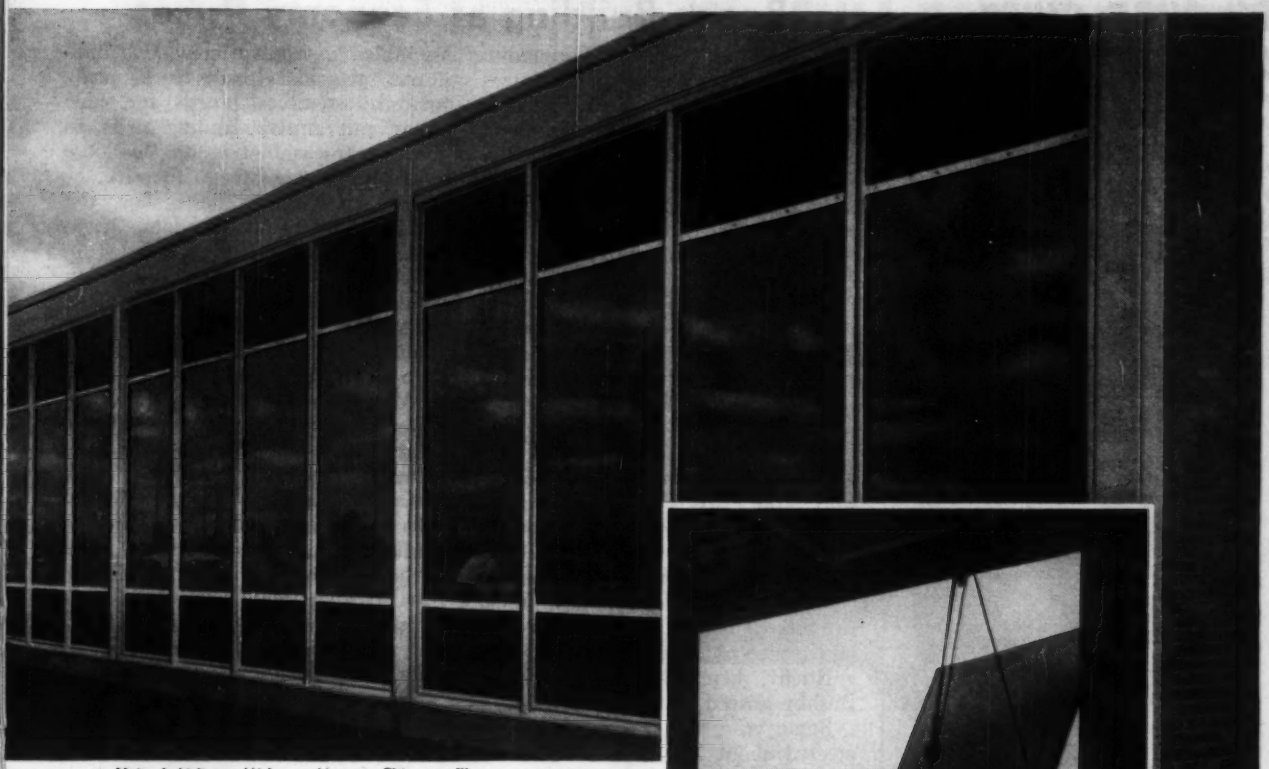

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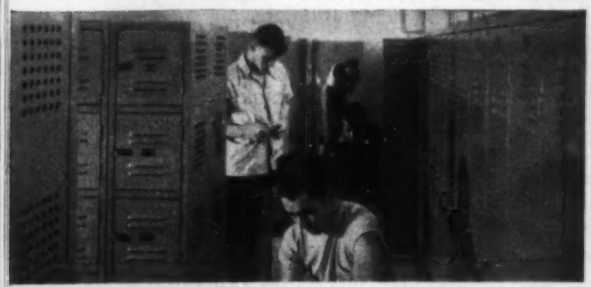

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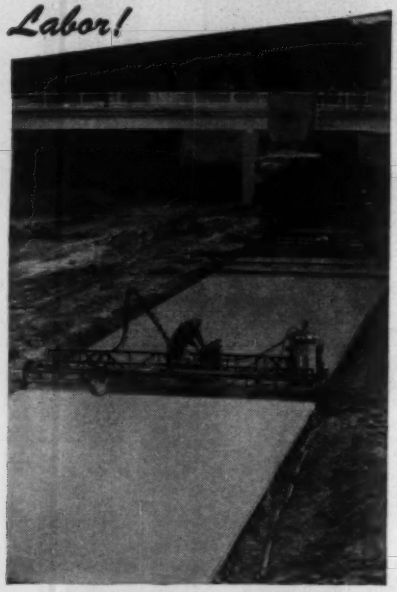

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been built in 1951 at Fernandina Beach, Fla.

Hopkins and Norman M. Pritchert, chief engineer, went to Fernandina Beach to investigate. Enthused, he enlisted the aid of Governor Theodore R. McKeldin, talked the contractor out of his $61,000 contract (on payment of expenses incurred to date); pulled F. P. Scrivener, L. W. Carr, and later Project Engineer John A. Bushby away from other work to supervise the new venture, and went to work.

In a year since that time, the Roads Commission has built 44 of the new type groins.

• **Design background**—In the year of work, the Roads Commission has now evolved a fixed type and contour for its groins, starting with one that had two "steps" in it to follow the contour of the beach, and ending in the present type that has a fixed slope of its entire length.

Briefly, here's how Hopkins and Bushby arrived at their designs:

Some years ago, a sand fence was erected about 250 ft back from and parallel to the surf line, and sand has mounded over the fence (both by wind and wave action) to an average elevation of 20.

Using this mechanically-made dune and the natural dune line wherever it exists, as a base, it was determined that the beach slopes on an 8% grade from mean low water for 100 ft, then flattens to a 4% grade back to the dunes. The first groin was built to conform to this general contour, on a 7% grade in general. As finally evolved, the groins have a constant 5% grade without a break, back from the water line.

The sand available on the beach is a fine white, rounded sand, 83% of which will pass a No. 40 sieve, and is fine for bathers, but offers little possibility of compaction and nearly no support for heavy vehicles.

First designs called for a two-step construction operation, putting down a 6 in. thick asphalt apron in one step, then building the groin in a second operation. Further development this year has made possible a one-step job.

The final shape (see drawings) is a 200-ft long finger of asphalt and sand, extending from the dune line into the water, ending at the water in a smooth spatula-shaped structure, only inches above the sand.

• **How to build a groin**—Construction operations go fast. Here's how it works:

Prior to absolute low tide, Bushby assembles his 20-man crew, two bulldozers, gets his asphalt trucks ready to roll, assembles boards for edge forms and airplane-landing mats to give the trucks footing on the loose sand, and prepares to go to work.

As soon as the tide is low, the 'dozers, working in tandem, begin cutting a trench 22 ft wide and 6 in. deep on 25% grade for the full length of the proposed groin, pushing the sand before them into the sea to form a temporary cofferdam. Grade stakes have been placed previously.

While the dozers are still working, crews place boards along the sides of the trench to serve as side forms, and other men follow immediately with the airplane mats. The trucks, loaded with hot-mix asphalt, move in immediately, dumping at the outer spatula-shaped end and are followed by work crews who shape the asphalt rapidly—and with as little actual handling as possible to prevent separation of the mix—with spades and rake. The spatula is shaped on top very much like an inverted tablespoon, rising from an elevation equal to that of the sand to a maximum of about 18 inches, with its edges as smoothly rounded as possible.

As the dumping proceeds backwards up the beach, the groin begins to assume a triangular shape that eventually becomes 3 ft high and 8 ft wide at the base with a 5 ft. apron on each side. Although slip-forms were tried on the first groins built, they did not prove successful, and work is now done entirely by hand.

Standard time for complete construction is now about 8 hours.

A small portable hot-mix asphalt plant is used to prepare the asphaltic material, and beach sand is the aggregate for all but the first 35 ft of the structure (from low water). The peculiar rounded beach sand, hard to hold together even with the asphalt mixture, dictated use of bank-run sand for this first section of the groin. But in either case the mix consists of 91% aggregate and 9% asphalt (60-70 penetration, paving grade).

• **Quantities and heat**—Because of the fact that the mix must often be placed in sea water (the sand cofferdams are not impervious and are subject to breakdown by wave action in about 45 minutes) and because the material is worked into place by hand, heat is carefully controlled.

The mix for the first 100 ft is heated to a temperature of about 350 deg. F. while for the remainder of the groin a temperature between 225 and 250 deg F is satisfactory.

Trucks used are 6-yd end dump machines. Larger vehicles have difficulty maneuvering in the sand; more importantly, their loads are too great for easy handling by the working crews.

Quantities approximate 1.4 tons of asphalt-sand per lineal foot of groin. Bushby estimates this material is put in place now for about $9.80 per lineal foot, including all costs.

So fast is the sand buildup, once the groins are installed, that most of them have been virtually buried within a week of the time they were installed.

Only slight trouble has developed in any of the groins—mostly breakage along the sides of the triangular section. Engineers attribute this not to water action but to separation caused by the roundness of the sand grains, and by uneven cooling in handling and shaping. Investigations of this problem are going forward in cooperation with The Asphalt Institute, whose District Engineer R. K. Williams and Assistant Chief Engineer George H. Dent have been working closely with the Maryland officials on the installations.

However, according to Hopkins, the slight breakage has done no apparent harm to the work of the groins, so long as it does not disturb the smooth contour of the top.

Constant pounding of surf on the spatula-shaped ends has done no apparent damage at all. And there has been no undercutting of the groins, despite their lack of foundations. "They just bend into any slight depression the water can make," comments Bushby.

Although Ocean City was not in the direct path of two recent hurricanes (Connie and Diane) the area was exposed to high winds and heavy surf action. An inspection of the 43 groins immediately after the storms showed these conditions:

Seven of the groins are in excellent condition; 24 in good condition; 12 in fair condition, needing some repair.

Washington Plant Expansion Will Increase Alcoa Output

Aluminum Company of America is planning a $2-million expansion of its Wenatchee, Wash., plant to increase the annual capacity from 85,000 tons to 100,000 tons.

Production from the expanded facilities is scheduled to start next May.

The increased output will depend upon interruptible power from Bonneville. But Alcoa hopes to secure a contract for firm power, and is now discussing this possibility with various public and private power groups in the Pacific Northwest.

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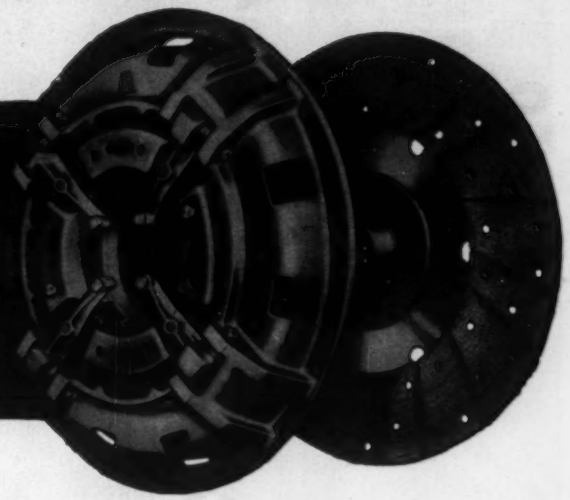

Just as long as there's the least bit of wearing surface left on the friction material, the Lipe Constant-Capacity Clutch maintains its torque capacity. A unique application of the toggle principle automatically compensates for friction material wear. The constantly increasing leverage of the toggle —which never goes over center—builds up pressure in almost direct ratio to friction material losses and compensates for fading pressure of expanding springs.

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- Automatically compensated pressure needs no adjustment

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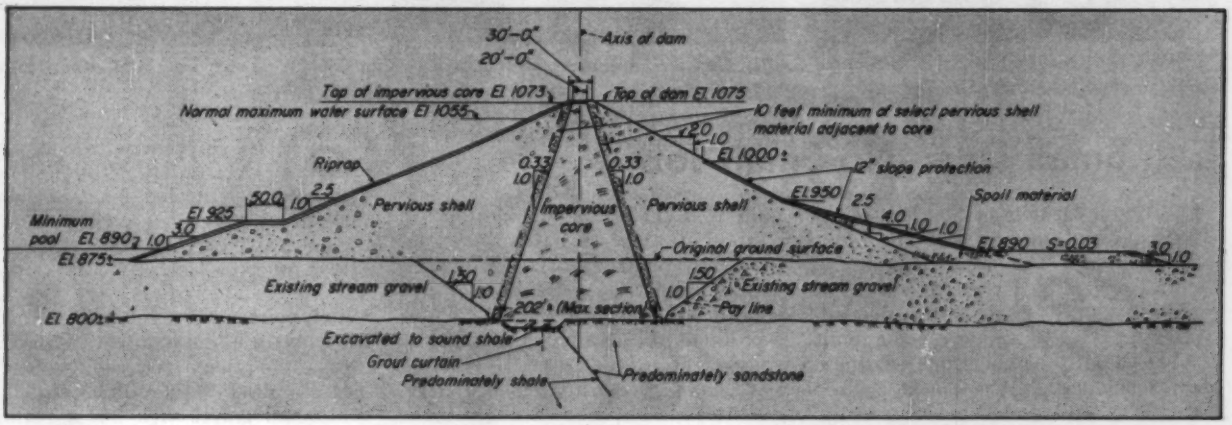
LOADER handles core material in continuous operation.

SHOVEL loads gravel that will form outer shell of dam.



DAM CROSS-SECTION includes impervious core protected by rolled gravel shells. Foundation materials is well suited for rolled fill but probably not as readily adaptable to a concrete structure.

Small Dam Proves to Be No Small Job

Financing, construction techniques, oil seepage solved as Calif. district "goes it alone"

Santa Felicia Dam in Southern California is not a large structure, as earth-and-gravel-fill dams go. But there were a number of problems solved in the course of planning and construction of this 4,000,000 cu yd dam that make it a very special job:

- It was financed entirely by local funds—an unusual circumstance in itself in an area where smaller communities have the opportunity to get the U. S. government to bail them out of critical water situations.
- Permeability rates proved to be much lower than expected—but remained satisfactory.
- An admixture of pozzolanic cement replacement reduced cost of concrete.
- Oil seepage from a nearby active well field posed foundation problems.

Started in April, 1954, the dam is due to be completed late this year, in time to catch and put to use flood flows of the 1955-56 winter season. The work is a project of the United Water Conservation District that covers an area in the southern part of California's Ventura County totalling 213,000 acres, of which 143,000 are habitable or arable.

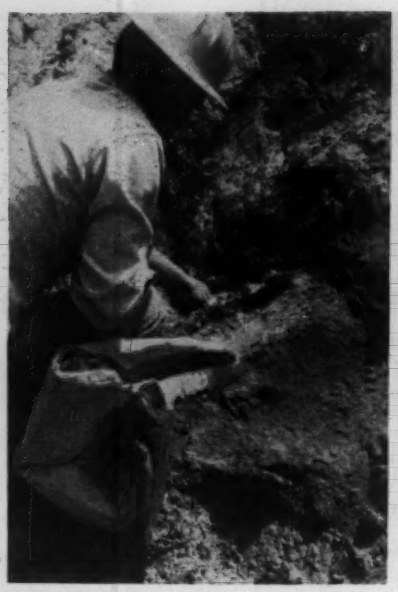
The district fronts on the Pacific Ocean some 80 miles northwest of Los Angeles. Major towns include Santa Paula, and Oxnard—around which are clustered three major military installations. Increased development of the area has resulted in increasing pumping from ground water supplies for both domestic and irrigation use, with attendant pumping cost and danger of seawater intrusion. (The coastal town of Port Hueneme has recently had to relocate one of its water supply wells a mile inland. Six other wells in the area have salted up in recent years.)

To cope with these problems, the United Water Conservation District was formed in 1950, taking in and supplanting an existing district (Santa Clara Water Conservation District) and other areas.

Engineers for the newly organized district found that two dams, one on Sespe Creek and one on Piru Creek, would yield enough new water to make up the expected deficiency. Result was an $18.5-million bond issue presented to voters in Dec. 1952, which failed to pass.

A re-analysis was made, and a new proposal presented in Oct. 1953. This bond issue was approved for just under $11 million. It called for construction of only Santa Felicia Dam on Piru Creek to develop 32,500 acre-ft of new water storage a year. Also included was cost of additional spreading grounds as well as pipelines and canals.

Officials of the district had investigated such alternate sources of supply as California's proposed Feather River Project, annexation to the Metropoli-



DRY CEMENT IS PACKED in foundation to close off oil seep.

OIL DRUMS measure gravel material permeability. Water from top drums flows through gravel filled bottom drums.

. . . Small Dam—No Small Job

tan Water District of Southern California, cloud seeding and sea water reclamation. All were rejected as either being too far in the future or not developed enough for dependability. The works now being built were designed so any one of these other potential sources can be utilized should it be desirable to do so in the future.

The district also considered possibility of seeking construction by some federal agency such as the Bureau of Reclamation or the Corps of Engineers. Conclusion was that the cost to the district might be greater. And there was no guarantee of early construction because of the politics involved in obtaining federal construction for a small local district. Local construction would guarantee local ownership and control—a factor that was considered very important by the relatively rich local area.

• **100,000-acre-ft reservoir**—The reservoir formed by Santa Felicia Dam has a capacity of 100,000 acre-ft. Stream flow is such that the reservoir is expected to fill about once in five years. Actually, runoff in this area usually follows a pattern of a number of dry years followed by a number of wet years. So it might be that the reservoir will fill several years in a row and then not fill for several years.

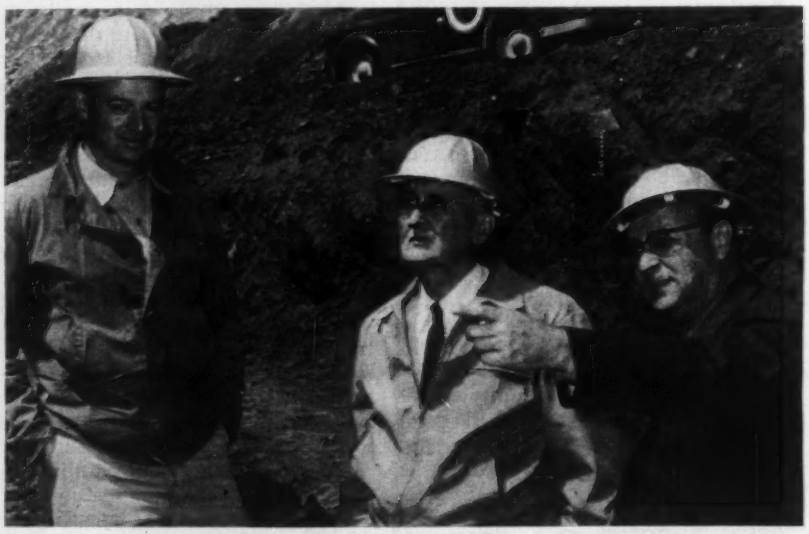
Releases for downstream use are handled by a 1,200-ft long, 60 and 66-in. dia outlet pipe through the dam controlled by two hollow cone valves.

The dam is located in a deep canyon—stream bed length is 1,030 ft while crest length is 1,260 ft. The spillway is cut into a shoulder on the right abutment. It has an ungated ogee crest discharging into a funnel-shaped chute. The downstream end of the paved chute cantilevers out over the hillside as a protection against erosion.

With a freeboard of five feet, capacity of the spillway is 105,000 cfs. When the reservoir is full to the point of overtopping the dam, spillway capacity is 157,000 cfs. This compares with maximum recorded flood in Piru Creek of 35,600 cfs.

The dam is a rolled earth-and-gravel fill. It has an impervious core of clay materials placed on a 0.33 on 1 slope. The core is protected by a pervious shell of compacted gravel with upstream slope varying from 2.25 on 1 to 3 on 1.

• **Low permeability**—Actually, the entire dam including both core and shell can be considered relatively impervious. Results to date indicate that the compacted gravel shell has a permeability of 200 ft per year—some authorities consider anything below one foot a day to be impervious. Permeability of the core is 0.024 ft per year. Relative permeability between the core and shell material provides



KEY PERSONNEL for district are Neville S. Long (left), Julian Hinds, and W. P. Price, Jr. Long was with Atkinson at McNary and Pine Flat Dams. Hinds helped build the Colorado River Aqueduct and served many years as chief engineer and general manager of the Metropolitan Water District of Southern California. Price was construction engineer for USBR at Canyon Ferry Dam.

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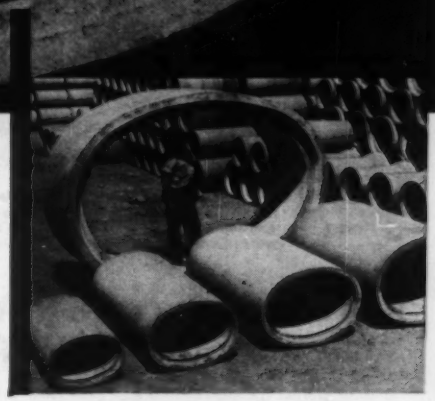

A full range of sizes in LO-HED Pipe is available for nearly all culvert and drainage installations. Shown above are the LO-HED equivalents of round pipe sizes 18″—24″—30″—36″—90″—120″.

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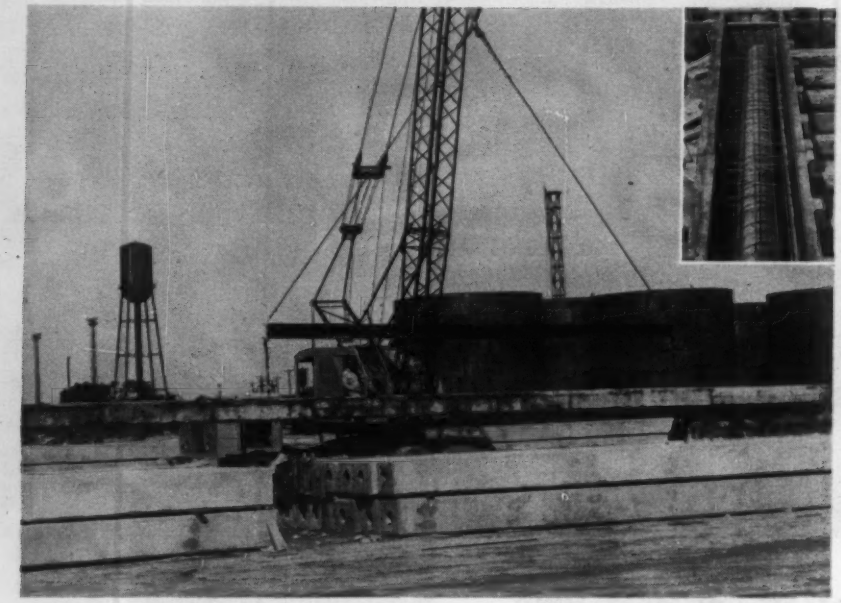

Esso Standard Oil Dock, Newport News, Va., developed and designed by Esso's Construction and Maintenance Div., New York. E. T. Hunter, Jamaica Concrete Products Co., Ltd., dolphin and pile design. Construction supervised by N. C. Beland, Supt. Const. & Maintenance, Va. Div., Esso. Tidewater Construction Corp., Norfolk, Va., contractors, Jack S. Lyles, Supt.

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a very satisfactory basis for design of the structure. In this instance, both shell and core are less pervious than anticipated in the design so the permeability ratio is in the same general range. (Design was based on a shell permeability of 7,300 ft per year and a core permeability of 0.365 ft per year.)

In evaluating the work during construction a means of measuring permeability of the gravel layers was devised. This centered around pairs of 55-gal oil drums. The top drum was filled with water and the bottom drum with gravel compacted as closely as possible to that in the dam. The water in the top drum was led to the bottom of the bottom drum to flow up through the sample. Measurement of water drop in the top barrel gives rate of flow. Head loss through the sample is determined by means of piezometers.

In general, fill operations are routine. Impervious material is loaded by tractor-hauled elevating loader and hauled in 13- and 17-cu-yd bottom dump earth movers. Shell material moving is a shovel and truck operation. Borrow areas for both types of material are available within a mile haul distance. Fill rates are roughly 50,000 cu yd of impervious material a month and 200,000 cu yd of shell material a month.

Compaction of impervious material is based on a compactive effort of 20,000 ft-lb per cu ft. This means six to eight passes of a 50-ton pneumatic roller or 10 to 14 passes of a USBR standard sheepsfoot roller are needed to roll an 8-in. uncompacted layer. District engineers have found that better results are obtained by the pneumatic roller.

In the critical area next to abutment rock where tractor hauled compactors cannot operate, compaction is accomplished by driving a loaded end-dump truck back and forth as close to the rock as possible. Hand-operated pneumatic tampers are used only where rubber tires won't reach.

• **Concrete design**—In an earthfill dam project of this sort, concrete yardage is relatively limited—totaling in this case only 32,650 cu yd. But careful attention was given to concrete design to offset aggregate reactivity. This was accomplished by replacing 15 to 18%, by weight, of the cement with a pozzolan (including structural type concrete in spillway chute walls). Result was also a significant saving.

In addition to cement replacement, the designers desired to use an air entraining material that would improve workability. This would permit a decrease in the water-cement ratio. Such a decrease would mean that the desired

strength could be obtained by using less cement. However, it was found that the available aggregate supply together with the particular pozzolan used (Airox) would inhibit the action of vinsol-resin type admixtures. But this effect was not noted on calcium-lignosulfonate-based admixtures, such as Master Builders Pozzolith. Quantity of Pozzolith added is 1.9 lb per cu yd for 3,000 psi concrete and 1.6 lb per cu yd for 2,500 psi concrete. These quantities are 0.5% of the cement weight.

• **Oil troubles**—Santa Felicia Dam is in the vicinity of an active oil field. One well in the reservoir area was purchased and plugged off. The former owner still retains the mineral rights and may drill a new well on the reservoir bank.

To close off water and oil along the center line of the dam, a three-stage grouting program was undertaken. Holes were spaced generally at 10-ft centers with first drilling to a 20-ft depth. After grouting, the holes were redrilled to 60-ft depth and regrouted. Then every fourth hole was again redrilled to 120-ft depth and regrouted. Most of the grout take was confined to the first 20 ft. Due to a large number of breakouts in the channel section of the cutoff trench, a second row of grout holes was drilled 10 ft downstream from the first.

When the foundation rock was uncovered, many oil seeps were encountered. Most of these came from cracks in the rock and are attributed to reduction of pressure on the foundation by removal of overburden. By the time operations were to the point where filling was to start, many of the seeps had dissipated. The engineers are convinced that the pressure of the dam will be substantially greater than pressure causing the seeps. So the problem was how to handle the seeps until pressure from the fill could be built up. It was found that the seeps could be controlled by dry-packing with a heavy neat cement mortar.

For the United Water Conservation District, Julian Hinds is general manager and chief engineer, W. P. Price, Jr., is assistant chief engineer and Neville S. Long is construction engineer. Detailed designs of the dam were made by the hydroelectric division of Bechtel Corp. under the direction of M. L. Dickinson. Construction of the dam under a $3.5-million contract is being carried out by a joint venture of D & H Construction Co., Macco Corp., and M. H. Hasler Construction Co. Project sponsor is W. J. Darkenwald, vice president and general manager of D & H Construction Co., and project manager is George J. Renauld.

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PHOTO—Dauphin Island Bridge, Alabama. Blount Bros. Const. Co., Montgomery, Ala., and Kansas City Bridge Co., Kansas City, Mo., joint contractors and developers of method of pile encasement. Frank W. Currey, Gen'l. Supt., W. D. Tryon, Proj. Eng. Alabama Hwy. Dept., J. W. Chambers, Ch. Bridge Design Engr., designers.

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The use of SONOTUBES as forms for encasing the steel H-piling, along with a job-developed air and water jetting device, made it more economical and efficient to use the 20" dia. circular encasements than the standard 16" square encasement. Two pours were used to encase the piles; the first one, below water, was from 2' below ground line to 1' above water level.

Because of the presence of sway braces, above water, the SONOTUBES were slit and notched with an electric saw then fitted over these braces. The forms were clamped with rachet type column clamps, then poured.

Another advantage of the SONOTUBES was that they eliminated external curing and also kept the fresh concrete from exposure to sea water. Details of the forming and pouring methods are available on request.

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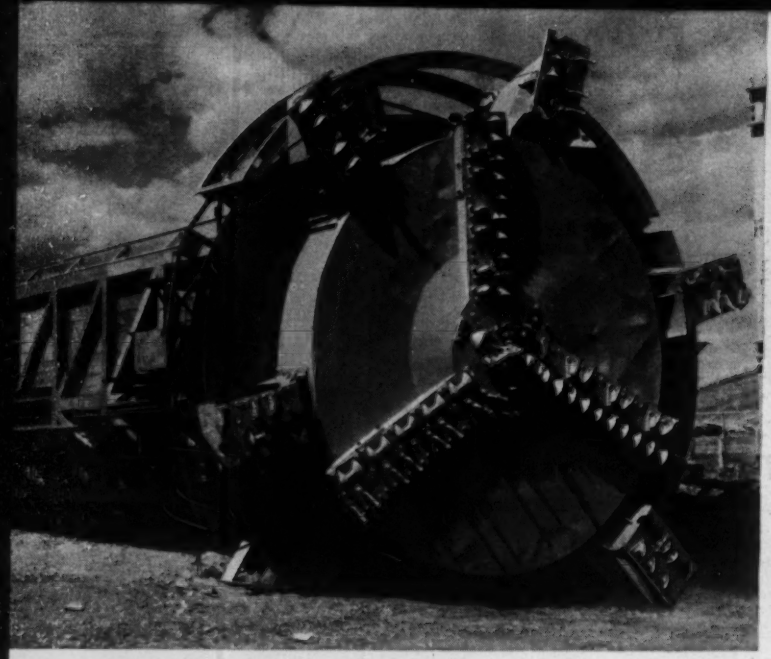
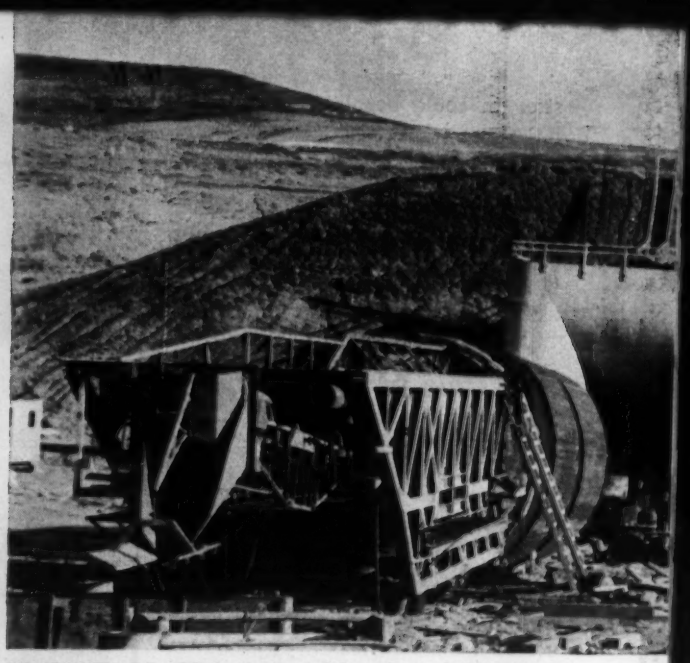
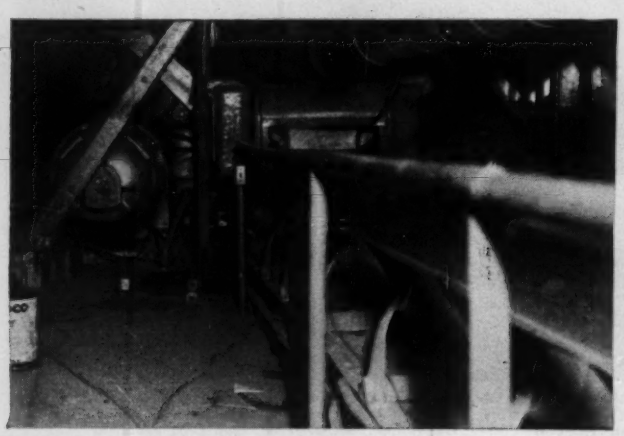


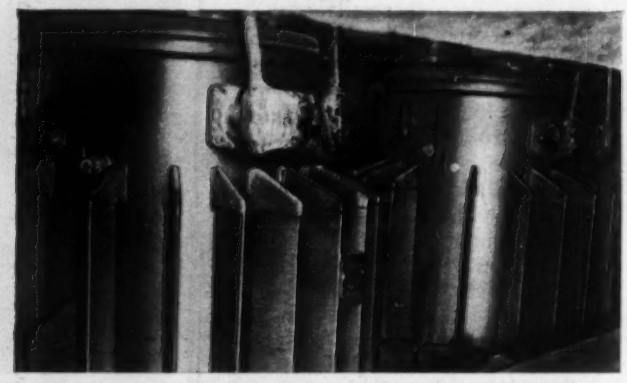
MECHANICAL MARVEL shows its mighty teeth. The 26-foot cutting face can be raised, lowered, and swung from side to side to alter direction of cut. Note concentric cutter heads and shale scoops.



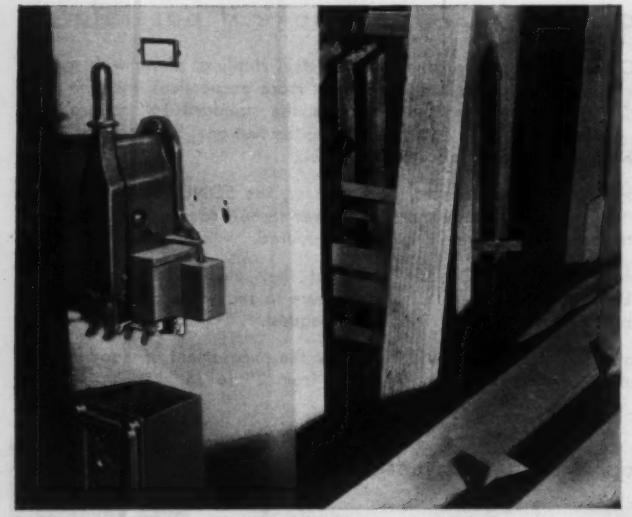
IMMENSITY OF JOB is suggested by view of six tunnel entrances bored in record time by new mole (above). Reinforced concrete tunnels average 1830 feet long.



DIGGER'S RELIABILITY depends largely on performance of two 200-hp G-E wound-rotor motors driving cutters through gear mechanisms. Conveyor carries rubble to cars at rear of mole.

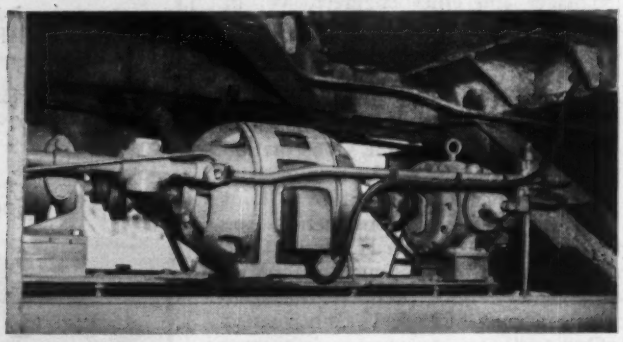


THREE COMPACT 167-kva G-E transformers in digger step down power supplied by cable from diesel-generator outside.



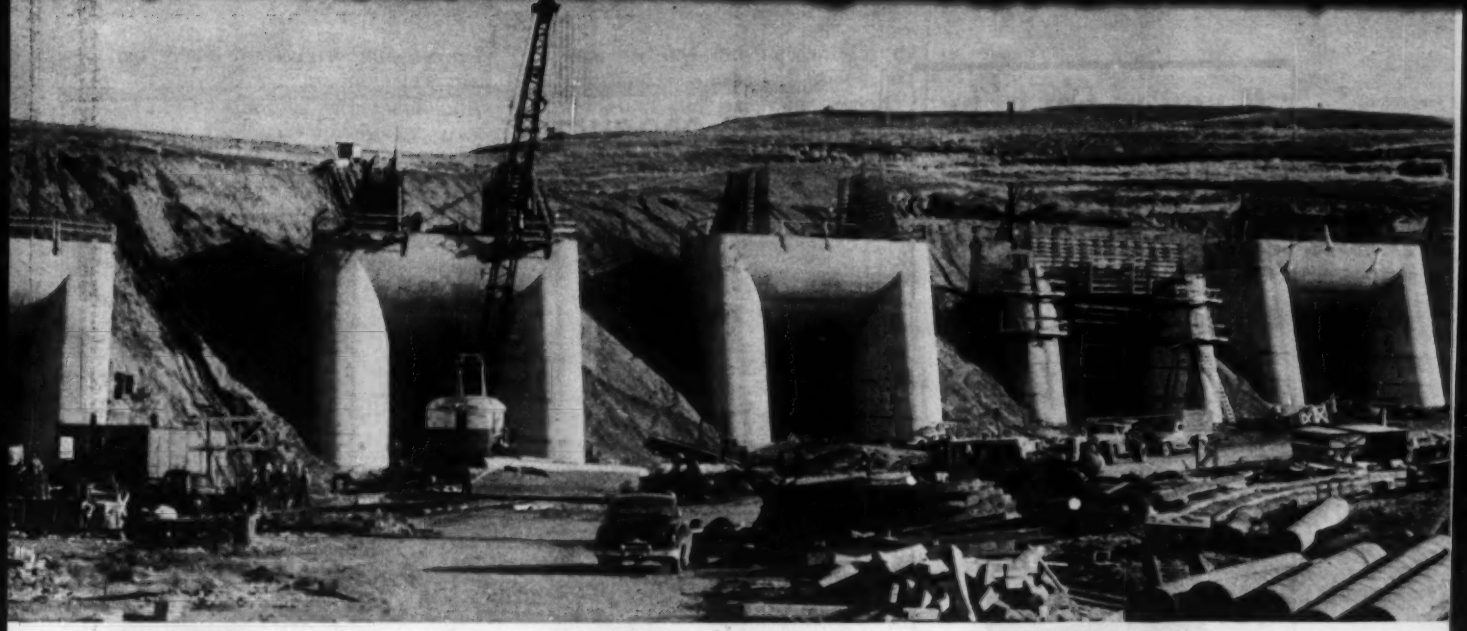
PROTECTION of electrical system is provided by dead-front panel with circuit breaker and ground relay. Compact General Electric equipment had to fit into tight space available.

G-E MOTOR CONTROLLERS provide short circuit protection and permit centralized push-button control at operator's station.



EXACT FORWARD MOVEMENT into rock face is accomplished with highly dependable G-E 25-hp motor furnishing power for hydraulically operated "feet" which propel mole on tracks.

GENERAL ELECTRIC



Electrically powered by General Electric . . .

New giant "mole" chews tunnels 26′ wide over 4 times faster than previous methods

Mittry Constructors' tunnel digger illustrates high productivity possible with electrified tools

At the Oahe Dam of the Missouri River development near Pierre, S. D., an electrified tunnel digger 90 feet long has slashed tunneling time, costs and dangers. This imaginative use of electricity is even more successful than anticipated by its pioneering designers. James S. Robbins and Associates, Chicago, designed and built the "mole" for Mittry Constructors of Los Angeles under license from Goodman Mfg. Co., Chicago. According to Robbins, help from J. R. Porter, G-E engineer, greatly contributed to completing the digger two months ahead of schedule.

Problem was extremely difficult: How to dig six tunnels each over one-third mile long without exposing shale more than 30 days? Longer exposure would dry and dangerously weaken shale.

Solution was new electrified tool, which dramatically cut tunneling time to less than one fourth that needed by other methods. Digger was designed with two motor-driven concentric revolving cutter heads with large shale scoops on outside ring. Sections revolve in opposite directions to equalize cutting torque. Scoops dump shale through hopper to conveyor belt. Every four feet, a large I-beam is rammed into shale walls for support. Concrete is then pumped into forms to finish walls.

Down time has been practically zero. Despite conditions such as a constant humidity of 95% in the tunnels, G-E equipment has reliably powered this giant mole continuously and efficiently.

Electrified construction tools can pay off the same way for you too. Let your G-E Apparatus Sales representative show you how G-E equipment, backed by G-E engineering service, can raise tool productivity. Contact your nearest G-E Apparatus Sales office, or write General Electric, Sect. 664-37, Schenectady 5, N.Y.

Engineered Electrical Systems for Heavy Construction Tools

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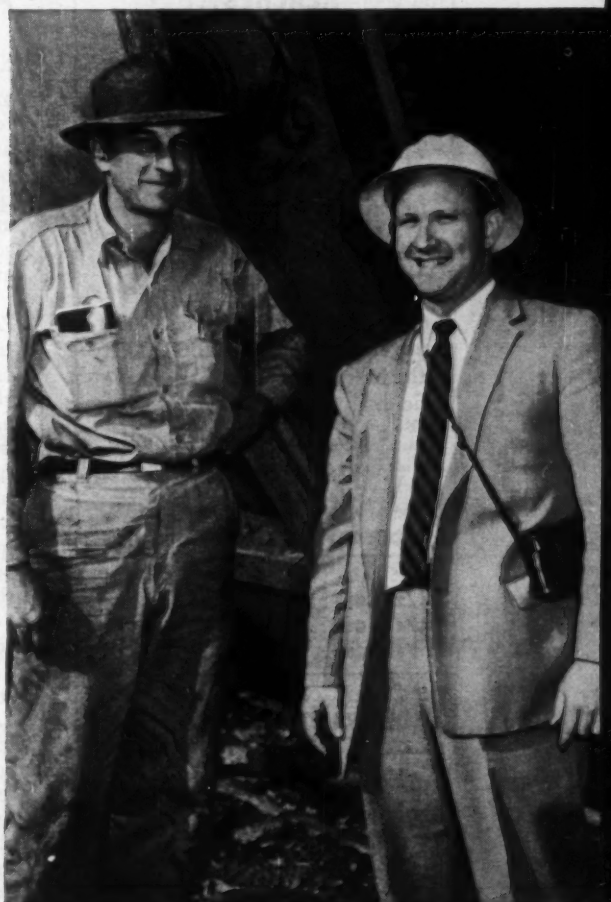

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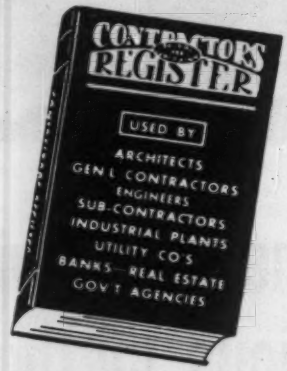

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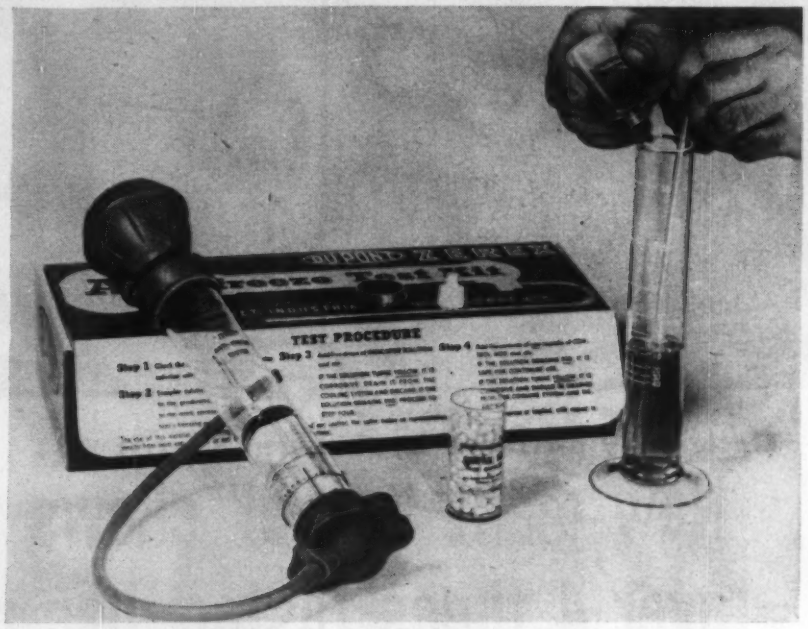


Analyzer Can Cut Anti-Freeze Costs

Estimates indicate that construction companies can cut their annual anti-freeze and cooling system maintenance costs with a Zerex anti-freeze analyzer. With it, maintenance supervisors can determine accurately and quickly which anti-freeze solutions are safe to hold over for another season, and which have become corosive and thus should be discarded.

According to the manufactures of Zerex—an ethylene glycol-base anti-freeze — permanent-type anti-freeze can turn acid in the cooling system after one season's use. Air and exhaust gases seeping into the system break down the glycol, forming harmful acids, and it is a big job for the inhibitor in the anti-freeze to neutralize these acids. Eventually, when the inhibitor becomes depleted, the acid solution can cause severe corosion of the engine block and radiator metals.

The corosiveness of an anti-freeze solution after one winter's use is in direct relation with the amount and strength of rust inhibitor still present. Laboratory tests have shown that when all of the inhibitor is lost, the corosion rate on iron is just a little less than ¼ in. per year. It is evident, therefore, that the amount of reserve alkalinity of permanent anti-freeze must be determined accurately before the decision to re-use the anti-freeze can be made.

With the Anti-Freeze Analyzer, the reserve alkalinity of any Zerex-water solution can be determined accurately, right on the spot. The kit can be used by maintenance men, following printed instructions, and the test can be done in two or three minutes.

Here is how the analyzer works. Using a special hydrometer in the kit, the freezing point of the used anti-freeze solution is first determined. This solution is then transferred into the graduated flask, up to the mark corresponding to the freezing point of the solution. Five drops of special indicator solution are added and stirred. If the used solution in the flask turns yellow, it is already acid and the cooling system from which the sample was taken should be drained, and the solution discarded.

If the solution does not turn yellow when the indicator is added, it's a sign that there is still some inhibitor left. The next step is to determine how much active inhibitor remains. This is done by adding to the solution in the flask the contents of one of the control acid capsules; these capsules contain an accurately weighed amount of the control acid. If the solution does not turn yellow it is safe to re-use because it still has ample reserve alkalinity left. However, if the control acid turns the solution yellow, most of the reserve alkalinity has been lost, continued use of the anti-freeze solution is dangerous and the cooling sys-

tem should be drained immediately.

In this manner, maintenance men can detect solutions with spent inhibitors and thus save the cost of expensive replacement of radiator cores or water pumps and safely re-use many gallons of Zerex anti-freeze.

The analyzer comes complete with a hydrometer, graduated flask, indicator liquid, 100 control acid capsules and a glass stirring rod. Complete instructions are printed on the container. Available only at Du Pont anti-freeze jobbers, the cost is $8.95.

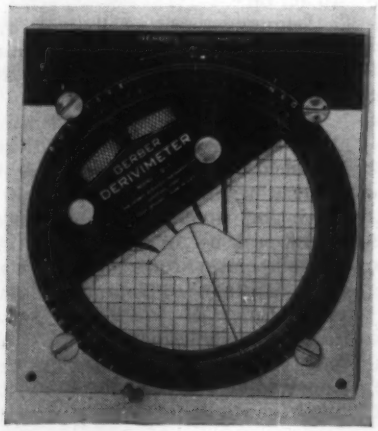
It is important to note that the analyzer works only with Zerex; it is not designed for use with any other brand of anti-freeze. The indicator solution and the control acid capsules have been specifically compounded to react with the manufacturer's own formulas. E. I. DU PONT DE NEMOURS & Co., INC. WILMINGTON, DELAWARE

New Instrument Can Be an Aid In Designing Highways

The Gerber Derivimeter is an instrument designed to obtain the derivative or slope of a plotted curve.

The instrument yields the normal as well as the slope directly, without computation, and it is not necessary to know the exact equation of the graphical curve to determine derivatives. However, if an equation should be available, a simple plotting of the area of interest on coordinate axes allows the use of the Derivimeter to determine the slopes. Unless the function involved differentiates very simply, the use of the Derivimeter is said to result in a saving in time even when the exact equation is already known.

In addition to the obvious uses for the instrument in obtaining slopes and derivatives, it has application in such specific problems as layouts involving tangents and intersections to the curve lines in road planning, and the compiling of velocity and acceleration data from displacement curves.



There are few moving parts, and the instrument is reported to remain in calibration and retain its accuracy over a long period of time. A flexible flat spring is mounted on a pivot at its center, the pin parallel to the flat side of the spring. A light metal indicator is mounted perpendicular to the spring at the center, also being perpendicular to the pivot pin. Since the other end of this indicator registers on a circular scale, any deflection of the spring or rotation about the pivot pin is immediately transmitted to the scale. The scale is divided into four quadrants to read the sign as well as the numerical value of the derivative. The deflection of the spring is controlled by the sliding of two widely spaced rods contacting the back of the spring. Two probes, located near the pivot also contact the back of the spring, giving fine adjustment control to the shape of the flexed spring.

In operation it is necessary only to place the pivot at the point of interest on a given curve, adjust the spring to coincide with the shape of the curve, and the derivative can be read from the scale.

In using the Derivimeter the square frame containing the movable indicator mechanism is oriented with the grid lines of the curve being measured. The pivot pin is located on the point of the curve where the derivative is to be taken. After the preliminary adjustment of the unflexed spring to a position approximately tangent to the curve, the spring is adjusted to conform to the shape of the curve. The derivative or slope is read from the circular scale. By orienting the frame at 90 deg counter-clockwise to the derivative position, the normal to the curve can be read. THE GERBER SCIENTIFIC INSTRUMENT CO., 162 STATE ST., HARTFORD, CONN.

Inorganic Coating Makes Possible "Cold Galvanizing"

Protection equal to galvanizing is the claim made for Dimetcote–a metallic zinc coating for structural steel. Completely inorganic, the material is said to contain no oils or resins although it can be applied with either a brush or spray.

According to the manufacturer, the coating cathodically inhibits contiguous areas of bare steel.

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It is reported that only one coat is required for most applications and material cost is less than 6¢ psf. AMERCOAT CORP., 4809 FIRESTONE BLVD., SOUTH GATE, CALIF.

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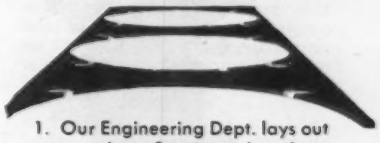

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INTERNATIONAL

Electric Office Building Goes Up

In keeping with its future tenant, Vancouver's newest skyscraper will incorporate the latest in electrical devices. Built to house the British Columbia Electric Co., the 21-story glass and enamel structure will include electrically-operated venetian blinds, electronic elevators, variable ceiling illumination, and electrically-developed steam heating.

One of the really unique features of the building will be the method of overcoming excessive solar heat transmitted by the 50,000 sq ft of double paned glass which forms part of the building's skin. Tiny venetian blinds composed of ⅛-in. slats of bronze between the two slabs of glass will be closed or opened at the flick of a switch.

Six automatic elevators in two banks will provide vertical transportation. They are of the self-service, high-speed type with electric eyes to prevent closing of the doors on a passenger. The elevator system also schedules itself to accommodate changes in traffic flow. If an elevator becomes overloaded, a recorded voice announces the fact and asks someone to get off.

Luminous, acoustically treated ceilings will offer variable illumination to suit the type of work being carried out in each department.

Heat will be distributed through the air conditioning system with steam supplied by electrical energy. A steam generator will be used which will produce and store steam during periods of off-peak use of electricity. Air will be temperature-controlled and washed with constant temperature maintained at all times.

Electric cables will be placed under adjacent drives and sidewalks to remove snow and ice.

In contrast to existing downtown

office buildings, the new structure will avoid "canyonizing" adjacent streets. Instead of building to the property line, the structure will be set back and will occupy less than three-quarters of the total lot area and this only to the third story. Above this a tower will rise another 19 floors, occupying only one-quarter of the total lot area.

The central core of the building is designed in the shape of an elongated, truncated diamond with a 200-ft major axis. From the core, which is to be built of reinforced concrete, the tower floors will be cantilevered to provide unobstructed floor space. The arrangement makes it possible to locate all offices no further than 15½ ft from a window.

The floors and ceilings are designed so that office partitions can be installed or moved at 39-in. intervals in two directions. This is to provide for internal flexibility. The building, expected to be completed in 1957, will, it is estimated, take care of staff increases until 1975 with room for 1,200 office workers. However, there is space at the rear of the building for additional expansion.

Contract for the $6.5 million building has been awarded to John Laing & Son (Canada), Ltd. The Laing firm, which moved to Vancouver to develop the Annacis Island industrial estate, beat out five other firms with a low bid of $1,380,251 for structural work. Laing will also coordinate $5 million worth of plumbing, electrical and air conditioning subcontracts which will be let out progressively.

Design of the 360,000-sq ft structure was developed by Tom Ingledow, BCE vice-president and executive engineer, together with a team of company engineers and architects headed by Ned Pratt of Sharp & Thompson Berwick, Pratt.

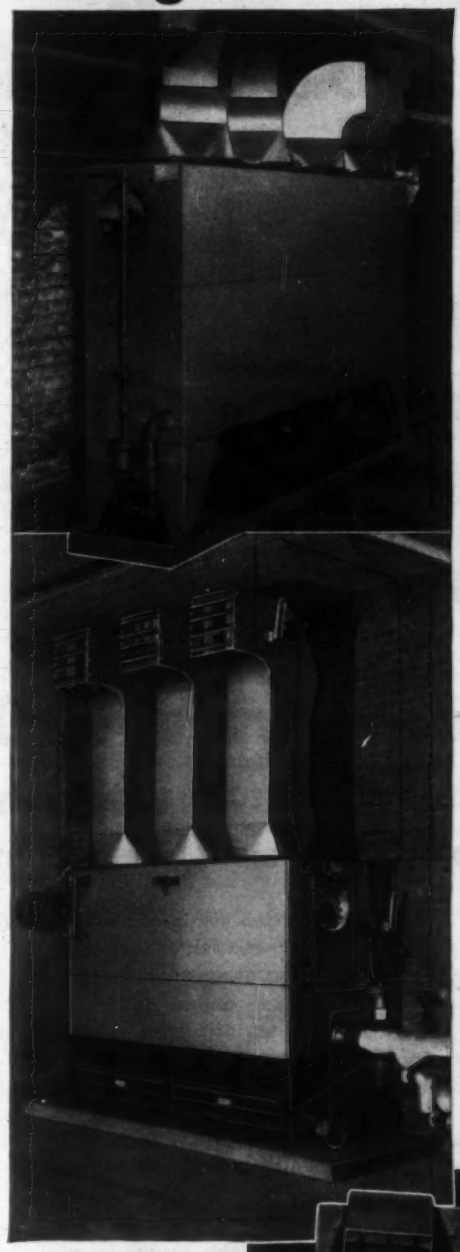
Hongkong in the Midst of "Skyscraper" Building Boom

Hongkong is approaching an all time high in construction—not only in quantity but in altitude as well.

According to latest reports, a 24-story structure will be constructed at a cost of $1 million. The structure, which will occupy 40,000 sq ft, will tower ten stories above the existing tallest building, the Bank of China.

In the last year, the building rate of tall structures has increased sharply. At least ten, between 10 and 20 stories ("skyscrapers" along Hongkong's historically squat skyline), are either in the course of going up or have recently been completed. A dozen more within the same altitude range are planned for the coming year.

Designed to fit the space and the need!



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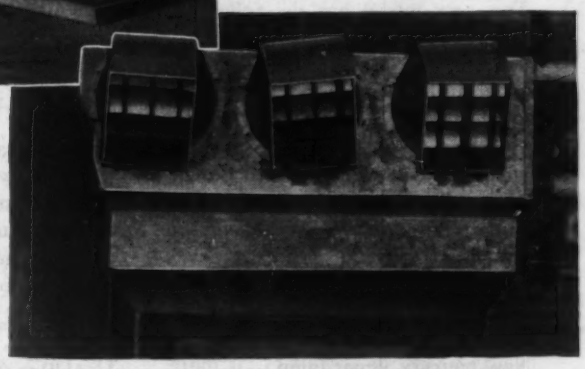
WALL-HUGGING HEATER for close-quarter jobs like the installation above. Note sectional construction for easy installation and servicing.

HEAT WITHOUT REDUCING FLOOR SPACE! Below, a "Buffalo" Flat Suspended Lowboy keeps a warehouse warm and dry without reducing storage space.



HEATS — VENTILATES — FILTERS! Highboy unit equipped with filters, dampers and mixing chamber. Extended outlets have horizontal and vertical louvers. Also available in a flat suspended window unit for makeup air.

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...compact in size, low in cost

The new STREAMLINER 400 was designed to process any type of print, on any material, in a range of sizes up to 42" in width. It prints at speeds of from 1 to 24 feet a minute.

Low in cost, economical to operate, the Streamliner 400 is loaded with new features, and has no competition with any whiteprinter in its price class.

This new model has the following outstanding advantages:

Synchronized printing & developing . . . permitting continuous operation with roll stock.

Speed control . . . for quick, positive changes of running speed, from 1 to 24 feet per minute.

Instant reversal . . . easy to correct alignment errors, and permits removal of extraneous materials.

Tempered plate glass feedboard . . . gives operator clear view of stacking.

New mercury vapor lamp . . . is more efficient, and has a balanced cooling system that assures uniform exposure.

Pressurized evaporator tube . . . with automatic controls, provides uniform developing, at top speed.

Developer control dial . . . can be manually set for the best developing of any sensitized material.

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Exhaust timer . . . blows off heat and vapors after operation has stopped.

THE basic simplicity of design and construction also results in minimum maintenance. For any company which requires versatility *and* capacity, the 400 can show definite savings in time and print costs. And its price will not bulge your budget.

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MEN AND JOBS

M. A. Ellsworth

Fluor Corp. Announces Organizational Change

The Fluor Corporation, Ltd., Los Angeles, Calif., will combine its engineering and construction operations into one division, which will be headed up by M. A. Ellsworth as vice president and general manager. The organizational change becomes effective Nov. 1.

Ellsworth has served as vice president in charge of the sales division for the last three years. He joined the company's sales staff at Tulsa, Okla., in 1940 and was named Tulsa district manager in 1944.

Among those reporting to Ellsworth in his new post will be J. G. Marshall, vice president, general engineering; W. P. Downey, vice president, construction; and J. P. Kneubuhl, vice president, engineering and construction sales.

Joint Venture To Assist U. S. Air Force in England

The architectural-engineering joint venture of Frank Grad & Sons of Newark, N. J., and Seelye Stevenson Value & Knecht of New York City has received a one-year contract for United Kingdom work from U. S. Air Forces in Europe.

With headquarters to be established in London and regional offices in Abingdon, Newmarket and Doncaster, it will assist the Air Force in supervision and inspection of construction on Third Air Force installations in England.

The project will employ 34 Americans and 17 British nationals in administrative and clerical categories. Architects and civil, electrical and mechanical engineers will comprise the

American contingent. Most of the specialists in the regional offices will be assigned to field work.

For nearly four years, the joint venture has been engaged in the design and construction supervision of USAFE jet air bases in northeastern France, comprising part of the NATO defense system. The $125 million construction program includes installations at Toul, Chaumont, Chambley, Brienne Le Chateau, Chenevieres and Chalons Vatry.

Adm. Karo Is New Director Coast and Geodetic Survey

H. Arnold Karo has succeeded Adm. Robert F. A. Studds as director, U. S. Coast and Geodetic Survey. His appointment by President Eisenhower included promotion to rank of rear admiral.

Adm. Karo entered the commissioned service of the bureau in 1923, after obtaining a civil engineering degree from the University of Nebraska, and has served it continuously except for World War II duty with the Army Air Force. For the last four years, he has been chief of the chart division.

Elected An Officer In Pittsburgh Firm

Frank L. Wilhelm has been elected assistant vice president of The Rust Engineering Company, Pittsburgh, Pa. His headquarters will be in the home office, where his duties will be of an operational nature.

Wilhelm joined the Rust organization in 1936 as a field office manager and has served as superintendent and project manager on major construction projects. His most recent field assignment was as procurement manager for the company's construction work at Oak Ridge, Tenn.

F. L. Wilhelm

There is No Worry about Failures or Maintenance Costs with TRU-LAY *PUSH-PULL* Remote Controls

• On Construction Equipment they are being adopted by an ever-increasing number of engineers because they are Rugged, Trouble-Free, Accurate and Adaptable to all sorts of mechanical situations.

Long Life is a matter of record. We have never heard of a TRU-LAY *Flexible* PUSH-PULL CONTROL wearing out in normal service. Failures, that sometimes harass users of more complex controls, are eliminated by the use of these simple, positive-action Push-Pulls.

Dependable Operation of these controls is a certainty, even under the most adverse conditions . . . HOT as jet engines (Note: TRU-LAY PUSH-PULLS are actually performing on hot jet applications) . . . COLD to 70° F. below zero . . SOAKIN' WET . . . ABRASIVE . . . or just plain TOUGH.

Freedom from Trouble is assured because of such features as . . . full protection of the inner, working member by the tough flexible conduit . . . lubrication of the working member *for life* during assembly . . . seals that keep moisture, dust and other foreign matter out of the unit . . . cold swaging of fittings that makes them integral parts of the control unit.

Accuracy is inherent in the basic design of TRU-LAY PUSH-PULLS. They are precision products, not gadgets.

Capacity ranges from light jobs up to jobs of 1,000 lbs. input. These Push-Pulls will handle jobs 150 feet or more from the control point.

Adaptability to all sorts of mechanical situations explains, in large measure, the use of TRU-LAY PUSH-PULLS on literally hundreds of different machines and equipment. The *flexibility* of these controls makes it possible to provide positive, remote-action whether anchorages are fixed or movable . . . it damps out noise and vibration . . . and reduces the number of working parts.

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TRU-LAY PUSH-PULLS are "Solid as a rod but *Flexible* as a wire rope." This flexibility makes it possible to snake around obstructions . . . permits the ideal arrangement of all elements of remote controls.

***Advantages** of Tru-Lay Push-Pull flexibility and simplicity are pictured below*

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Life-Time Service
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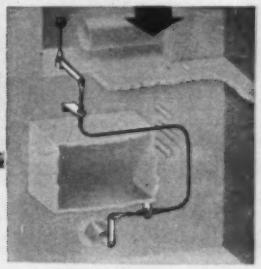

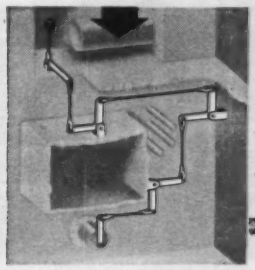

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Many Points of Wear
Increasing Back-Lash
Loss of Accuracy
Vibration
Rattles

Widely Used on Construction Equipment

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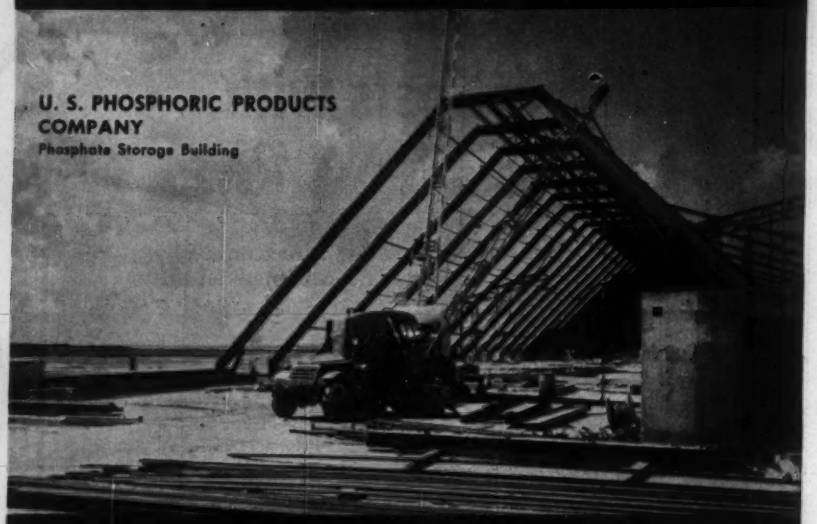

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MEN AND JOBS

Reclamation Bureau Names Members of Project Staff

Albert S. D'Alessandro has been named acting project construction engineer for the Bureau of Reclamation's Palo Verde Diversion Project on the Colorado River near Blythe, Calif.

Formerly a field engineer on the second barrel of the San Diego Aqueduct, he has been doing pre-construction work on the Palo Verde project since June at the Boulder City, Nev., office.

Other staff members in the new Blythe office include Howard Burr, office engineer, and William Gage, field engineer—both transferred from the Parker-Davis Project headquarters in Phoenix.

Division Engineer Promoted

L. E. Seeman, Southwestern Division Engineer for the Corps of Engineers, has been promoted to brigadier general.

With headquarters in Dallas, Texas, Gen. Seeman heads up a military construction program covering more than 75 installations in five states and a civil works program in eight states. He was assigned to the Southwestern Division last September.

Men and Jobs Briefs . . .

• **Associations**—The California Council of Civil Engineers and Land Surveyors names **William A. White** as its first permanent executive secretary, effective Jan. 1.

Rowland M. Garratt, M.I.T. graduate engineer formerly with Gamble Brothers, Inc., Louisville, Ky., joins the laboratory staff of Timber Engineering Co., research affiliate of National Lumber Manufacturers Assn.

• **Careers**—The Oregon Department of Highways names **Maurice N. Juve,** senior resident engineer, assistant division engineer in northwest Oregon . . . **Glenn A. Rick,** city planning director in San Diego, Calif., leaves to open an office as consultant . . . **Solon E. Davis** is appointed highway engineer for Davidson County, Tenn.

• **Retirements**—**Dan W. Ormsbee,** urban engineer, from the Colorado Highway Department, after 22 years of service. He plans to be a civil engineering consultant to utilities and oil companies . . . **Walter J. Long,** senior structural engineer for the California Division of Architecture, with which he's been associated for more than 44 years.

LEGAL

Specifications Are Key To Contractor's Guarantee

A contractor is not necessarily bound by his guarantee that a cellar he constructs will be watertight.

He is bound by the guarantee only if the plans and specifications would produce the desired result.[1]

Quoting from 9 American Jurisprudence, Building and Construction Contracts, Sec. 9, the court said: "A provision in a contract for construction of a cellar according to specifications, the whole to be watertight and guaranteed, binds the contractor only so far as his work is concerned, and does not guarantee the plans will produce a watertight cellar".

(1) Helm v. Sperth, 182 S.W. 2d. 635.

Sub Should Have Checked The Basic Specifications

A subcontractor agreed to manufacture and deliver certain products which were to comply with the requirements of the general contract. The materials as delivered did not comply with the specifications of the general contract and were rejected by the general contractor who bought them from another sub at a cost in excess of that in the first subcontract.

The general contractor brought an action against the first subcontractor and obtained a recovery. The first subcontractor claimed he had failed to read the specifications of the general contract. The court held failure to read specifications did not excuse compliance.[1]

(1) Bowser, Inc. v. Hamilton Glass Co., 207 F. 2d 341

Architect Held to Standard Of Due Care in Supervision

"An architect, when supervision is a part of the duties assumed by him under his contract with the owner, is required to exercise due care in the performance of his supervisory function, and is liable to the owner for negligence on his part."[1]

In this case, the court held that an architect's undertaking of supervisory duties, in the absence of a special agreement, is not an absolute guaranty that satisfactory results will ensue. Where, however, defective work results from negligence on the part of the architect, he is liable to the owner for any damages sustained by him.

(1) Palmer v. Brown, 273 P. 2d 306, District Court of Appeals of California, Aug. 4, 1954.

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for fastening to steel or concrete

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- JOB-MATCHED SYSTEM— exactly the fastener you need
- PIN-POINT CONTROL for accuracy and speed
- NEARBY SERVICE whenever or wherever you need it
- FASTENING LEADERSHIP keeps Ramset FIRST in the field

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RAMSET DIVISION—OLIN MATHIESON CHEMICAL CORPORATION
12107 BEREA ROAD • • • CLEVELAND 11, OHIO

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

▲ Mass., Andover—SCHOOL—BA 9/15—Town High School Bldg. Comn., c/o Supt. Schools, Shawsheen Rd., Junior-Senior High School. $1,750,000. Plans deposit $50. Rich & Tucker Assoc., 45 Newbury St., Boston, Mass., archts. CD 5/4/54.

HEAVY CONSTRUCTION—LB & CA

† Franchi Constr. Co., 815 Washington St., Newtonville, Mass., LB, $210,297, est. $200,000-$250,000, training center, Eldridge St., TAUNTON, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Aug. 23. CD 8/10.

† Girodano Constr. Co., 287 Main St., Branford, Conn., LB, $977,000, est. $900,000-$1,000,000. Special AAA Facilities, Orange and West Haven, Site BR-15, ENG-19-016-56-3, CONNECTICUT. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Aug. 23.

BUILDINGS—LB & CA

J. F. Rand & Sons, 57 Sudbury St., Boston, Mass., CA, $700,000, OFFICE, PORTLAND, ME. Baxter, Inc., c/o Stevens & Saunders, archts., 187 Middle St., Portland, Me.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

New York—BA 9/15—Henry A. Cohen, dir., Bureau of Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, beach protection (exten. of stone groins), Troy and Clayton Aves., East Atlantic Beach, Town of Hempstead. Contr. B.P. 55-34A, Nassau Co., $108,000; beach protection (4 stone groins) at Atlantic Beach, Town of Hempstead, Contr. B.P. 55-51, Part III, Nassau Co., $735,000. Plans deposit $10 each. adv. ENR 9/8/55.

BUILDINGS—BA

▲ N. Y., Mamaroneck—HIGH SCHOOL—BA 10/4—Bd. Educ., Union Free School Dist. No. 1, Business office, Mamaroneck Avenue School, Mamaroneck, I, general constr.; II, heating and ventilating; III, plumbing and gas fitting; IV electrical work; V, site development for alterations in and addn. to Senior High School. Plans deposit $75 for I; $50 each for II, III, IV, $25 for V. CD 12/23.

† N. J., Hackensack—ARMORY, etc.—BA On Or About 10/5—U.S. Eng., 111 E. 16 St., New York 3, N. Y. Armory and motor vehicle storage shed, ENG-30-075-56-44. Plans deposit $25. $250,000-$450,000. CD 8/19.

BUILDINGS—SLC

Pa. Pittsburgh—SCHOOL—Our Lady of Most Blessed Sacrament Church, c/o Marlier & Johnstone, archts., Empire Bldg., soon lets contract 2 story, 58x174 ft. brick, block, steel frame, parochial school. $375,000.

HEAVY CONSTRUCTION—LB & CA

Adson Builders Co., Inc., 116-55 Queens Blvd., Forest Hills, N. Y., LB $308,000, Contr. NYA-690-001 fuel trucks parking facility garage, New York International Airport, IDLEWILD Port of New York Auth. 111 8th Ave., New York 11, N.Y. Bids Aug. 23. CD 8/3.

† Certified Builders, 2662 Kensington-Wheaton Rd., Wheaton, Md., LB, $665,650. Special AAA W-94, site control and launching areas, Gaithersburg, ENG-49-080-56-7-(6), MARYLAND U. S. Eng., First and Douglas Sts. N.W. Wash. 25, D. C. Bids Aug. 23. CD 8/4.

▲ Leo Butler Co., 9217 51 Ave., College Park, Md., CA, $5,030,513. Patapsco Tunnel, Canton Land Section, Contr. PT-112, MARYLAND State Rds. Comn., 108 E. Lexington St., Baltimore 2, Md. Bids Aug. 11, CD 8/15, under LB.

▲ Whiting Turner Contg. Co., National Marine Bank Bldg., Baltimore, Md., LB $3,865,982. pier addns., imprs. McComas St. Terminal, BALTIMORE, MD. Western Maryland Ry. Co., F. L. Etchison, ch. engr., Standard Oil Bldg., Baltimore, Md. Bids Aug. 24. CD 7/28.

BUILDINGS—LB & CA

† R. D. Golden, P.O. Box 1027, Troy, N. Y., CA $379,440, RESERVE TRAINING CENTER, U. S. Naval & Marine Corps Reserve Training Center (IFB NOY 87753), ALBANY, N. Y. P. Wks. Office, Third Naval Dist., 90 Church St., New York 7, N. Y. Bids June 28. CD 6/23.

SOUTH

HEAVY CONSTRUCTION—BA

Va., Richmond—BA 9/20—at office J. W. Huffman, city purch. agt., Mosque Bldg., Laurel and Main Sts., equip. for West End portion of Richmond Sewage Disposal Proj., three motor-driven vertical sewage pumps of 1.5, 3.0 and 6.0 m.g.d. capacities at heads of 180 and 185 ft., one gasoline engine-driven vertical sewage pump of 6.0 m.g.d. capacity at 185 ft. head delivered to site of Gambles Mill Road Pumping Station south of and adjacent to River Rd. at Gambles Mill Rd. near westerly city limits of city; Div. J. Cary Street Road Intercepting Sewer, Part 2, approx. 285 lin. ft. 24 in. and 43 lin. ft. 18 in. concrete pipe sewer, approx. 1,472 lin. ft. 30 in. and approx. 7,862 lin. ft. 36 in. rein.-con. pipe sewer, with manholes, weir and junction chambers and all other structures, in Cary Street Rd. from Hamilton St. northwesterly to Maple Ave., and in Banbury Rd. from Cary St. Rd., southwesterly to Exeter Rd. Plans deposit $25 each. Greeley & Hansen, 220 S. State St., Chicago 4, Ill., engrs.; adv. ENR 9/8. CD 3/31/54.

▲ LOUISIANA—BA 9/27—The Mississippi River Bridge Auth., 422 City Hall Annex, New Orleans, Contract No. 4, superstructure of river crossing for Greater New Orleans Bridge over Mississippi River. Plans deposit $20. Modjeski & Masters, 2400 Canal St., New Orleans, engrs.; adv. ENR 9/8. CD 8/11/53.

BUILDINGS—BA

▲ La., Ruston—SCIENCE—BA 9/27—La. State Bldg. Auth., Baton Rouge, science bldg. at La. Polytechnic Institute, along Adams Blvd. across West Arizona Ave. $1,500,000. Plans deposit $50. Neild-Somdal, 960 Jordan St., Shreveport, archts.

HEAVY CONSTRUCTION—LB & CA

▲ VIRGINIA—Commonwealth of Va., Dpt. Hys., Central Hy. Office Bldg., 1221 E. Broad St., Richmond,

Va.—Adams Constr. Co., P. O. Box 60, Roanoke, Va. LB $204,845 (5 bidders) b. conc. 3.58 mi. Rte. 60, State Proj. 2103-11 Contr. II. Fed. Proj. F-040-1 (1), Allegheny Co.;

Va.—Ames & Webb, Inc., P. O. Box 4055, Norfolk, Va. LB $360,639 (2 bidders) c. conc. 2.54 mi. Rte. 60, State Proj. 2175-06-08-13, Fed. Proj. F-D-AD-10 (1). Princess Anne Co.; LB $369,613 (3 bidders) reinf. and plain concrete pavement, bit. top 1.33 mi. Rte. 164, State Proj. 5375-06-03, Fed. Proj. F-175 (4), Princess Anne Co.;

Va.—Birsch Constr. Corp., Box 6026, Milan Station, Norfolk, Va., LB $81,949 (3 bidders) plain c. conc. pavement, bit. top 0.795 mi. Rte. 17, State Proj. 2064-10. Fed. Proj. F-FG-029-1 (1), Norfolk Co.;

Va.—Robert T. Main Co., P. O. Box 1, Salem, Va., LB $291,189 (8 bidders) soil aggregate, bit. surf. tr. and bridge 3.89 mi. Rte. 360, State Proj. 2349; 05; 2350-01-02 Fed. Proj. F-030-1 (4); F-030-1 (1), King William and King and Queen Counties;

Va.—Ralph E. Mills Co., Inc., P.O. Box 513, Salem, Va. LB $341,182 (4 bidders) aggregate base, bit. surf. tr. 3.96 mi. Rte. 460, State Proj. 1935-12-13-17-18, Fed. Proj. F-128 (4), Giles Co.;

Va.—Moore Bros., P.O. Box 258, Verona, Va., LB $496,437 (5 bidders) b. conc. 1.23 mi. Rte. 250-A, State Proj. 1707-02-04, Fed. Proj. U-158 (2). City of Waynesboro;

Va.—Nelle W. Moyer, P. O. Box 905, Staunton, Va., LB $83,965 (6 bidders) soil aggregate base 6.2 mi. Rte. 635, St. Proj. 1330-16, Fed. Proj S-800 (1), Fauquier Co.;

Va.—Clyde R. Royals, 350 W. Pembroke Ave., Hampton, Va., LB $446,376 (11 bidders) soil aggregate base, bit. surf. tr. and alts. 21.62 mi. Rtes. 608, 612, 611, 610, 646, State Proj. 1330-13; 1376-11-12; 1389-07, Fed. Proj. D-AD-4 (2), Fauquier, Prince William and Stafford Counties;

received no bids Aug. 24, soil aggregate base, bit. surf. tr. 0.64 mi. Rte. 320, St. Proj. 4580-01-02, Roanoke Co.; aggregate, bit. top 1.48 mi. Rte. 220, State Proj. 1833-19-20-25, Fed. Proj. F-302 (16), Franklin Co. Bids Aug. 24. CD 8/10.

† Robertson Constr. Co., 1513 Lyon St., Columbia, S. C. CA $208,045, airmen's service club, jet engine test stands, Myrtle Beach Air Force Base, IFB ENG-38-081-55-94, MYRTLE BEACH, S. C. U. S. Eng., 33 Customhouse, Charleston, S. C. Bids July 22. CD 6/29.

BUILDINGS—LB & CA

▲ Concrete Builders, Inc., 800 East Ave. N. E., Atlanta, Ga., CA $1,000,000. PLANT, 484 Plaster Ave. N. E., ATLANTA, GA. Irvindale Farms, Inc., 1139 Spring St. N.W., Atlanta, Ga. Awarded Aug. 22.

Barksdale & LeBlanc, Box 1567, Baton Rouge, La., LB, $669,877 (2 bidders) Proj. EID-1, STORAGE WAREHOUSE and CARETAKERS QUARTERS, Proj. No. EID-2, BOYS' DORMITORY at Louisiana State School for Deaf, BATON ROUGE, LA. State Bldg. Auth., State Capitol, Baton Rouge, La. Bids Aug. 23. CD 8/5.

Henry Kappen, 680 Clanora Dr., Cincinnati, O., LB $366,860 (6 bidders) RECTORY and SCHOOL, COVINGTON, KY. St. Agnes Chapel, Dixie Hy., Covington, Ky. Bids Aug. 4, awarded Aug. 22. CD 8/1.

MIDDLE WEST

HEAVY CONSTRUCTION—LB & CA

National Eng. & Contg. Co., West 4th and Central Sts., Cleveland 13, O., CA $810,083, est. $700,000-$800,000, Westerly Sewage Plant addns., alterations, CLEVELAND, O. City, Dpt. P. Utilities, City Hall, Cleveland 14, O. Awarded Aug. 24. CD 8/17.

Great Lakes Dredge & Dock Co., Williamson Bldg., Cleveland, O., CA $298,438, Lake intake and crib for water filtration plant to serve northeastern area of Lake Co., at Madison-on-the-Lake, PAINESVILLE, O. Bd. Comrs. Lake Co., Harold A. Fitch, supt. Water Dpt., Court House, Painesville, O., Havens & Emerson, Leader Bldg., Cleveland 14, O., engrs.; R. Hansen Co., 2646 N. Moreland Blvd., Cleveland 20, O., CA $314,490, filtration plant (Painesville, O.).

Elmer Borchardt, Inc., Lucas St., Castalia, O., CA $348,758, pipe lines in Strub Rd. and Columbus Ave. area and Tiffin Ave. water main in Perkins-Margaretta Water Sys. SANDUSKY, O. Grand total $532,370. Bd. Comrs. Erie Co., Court House, Sandusky, O. Jones, Henry & Williams, Security Bldg., Toledo, O., engrs. Awarded Aug. 17, CD 12/24/52;

Pittsburgh-Des Moines Steel Co., Neville Island, Pittsburgh, Pa., CA $51,420, constr. 300,000 gal. tank, (Sandusky, O.);

Mosser Constr. Co., Fremont, O., CA $76,602, constr. tank foundations, valve chamber and pumping station, (Sandusky, O.);

Paul A. Cothrell, 1313 Jefferson St., Toledo, O. CA $55,590, outlying sections pipe lines (Sandusky, O.).

▲ INDIANA—Indiana Toll Road Comn., 309 W. Washington St., Indianapolis,

Union Bldg. & Constr. Co., 631 Main Ave., Passaic, N. J., CA, $5,545,643. Contract C-8, grading, drainage, structures paving approx. 1.9 mi. between Ralston and Buchanan Sts., Gary, Lake Co. Bids Aug. 17. CD 8/22, under LB.

BUILDINGS—LB & CA

Naber Builders, 5547 Cheviot Rd., Cincinnati, O. Own Forces. $600,000. 31 bsmnt., brick HOUSES, Epley and new street off Epley, CINCINNATI, O. Lawrence R. Heyl, 4432 Raceview St., Cincinnati, O., engr. Awarded Aug. 24.

E. J. Benes, Inc., 2860 E. 130 St., Cleveland 20, O., CA $384,656, general constr. 42,000 sq. ft. OPERATING AND HEADQUARTERS BLDG., ELYRIA, O. Elyria Telephone Co., 330 2nd St., Elyria, O. W. H. Kremer, 750 S. High St., Columbus, O., archt. Awarded Aug. 18.

(Continued on page 62)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings, $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction
(In order of Listings)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildnigs
Industrial Buildnigs
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar see also preceding issues.
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily
For additional reports see Construction Daily.

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HEAVY LOADS

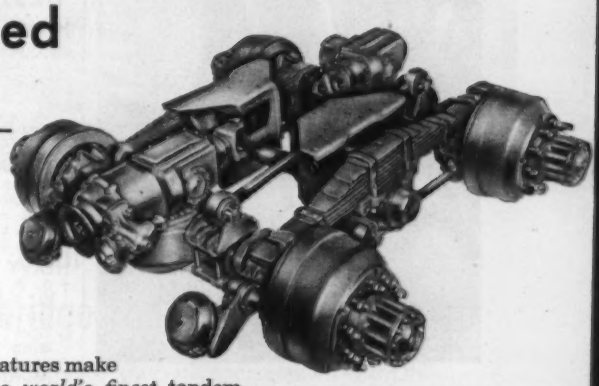
More payload with less downtime! That's the main goal of every tandem trucker . . . whether it's fast inter-city freighting . . . or rugged off-the-road hauling . . . or light-heavy cartage in and around the city.

Almost 40 years of tandem building have taught TDA the best ways to solve every tandem hauling problem. The most complete TDA family of tandems includes models that answer every need in the most economical manner. TDA tandems save payload . . . minimize downtime . . . give longer service . . . and operate with maximum economy under every condition.

ARE PAYLOADS

with TDA® tandems

...and exclusive Timken® Inter-Axle Differential that permits cab-controlled lockout at any speed...



Every heavy trucker has two big problems to lick. *First,* to deliver more payload faster. *Second,* to get the most service out of his equipment . . . with less maintenance, less downtime, and lower operating costs.

Years of TDA leadership have resulted in a tandem line that offers each trucker the most helpful answer to his special problem. In the broad TDA Tandem line, a hauler has a choice of 3 types of final drives and in a full range of capacities . . . standard units that fit his need as though they were tailor-made. But, more important than this is the quality of the TDA product . . . a marked superiority evident in such exclusive TDA features as Straight-Line Drive and Inter-Axle Differential.

Unlike ordinary tandems, in TDA Straight-Line Drive, propeller shafts form an absolutely straight line from the forward rear axle back to the rearmost axle. This permits smoother transmission of power, no noisy *around the corner operation.*

How TDA Inter-Axle Differential cuts truck and tire wear! With cab-controlled lockout! When tandem tires are mis-matched . . . or when tandem trucks are going over rough grades . . . one set of wheels must turn faster than the other. TDA Inter-Axle Differential permits any wheel to do this when necessary. Also, with TDA, the driver can, when necessary, lock out the differential and obtain a straight-through drive in mud or sand.

These features make TDA the *world's finest* tandem drive rear unit for heavy-duty motor trucks! (1) Available in 3 capacities and 3 types of final drives – hypoid-helical double-reduction, optional inter-axle differential. Worm drive, without inter-axle differential. (2) Top-mounted straight-line final drive eliminates propeller shaft angularity. (3) Optional inter-axle differential . . . spur gear design, cab-controlled power-lockout. (4) Torsion flow axle shafts . . . guaranteed for 100,000 miles or three years, whichever occurs first. (5) Hot forged steel axle housing . . . guaranteed for the life of the vehicle. (6) Unit-mounted "P" series power brakes . . . for longer life, greater economy and efficiency. (7) Cradle ride spring suspension and paralleled torque rod system . . . maintain correct alignment and weight distribution regardless of driving and braking conditions. (8) Exclusive two-piece trunnion tube bracket speeds servicing. (9) Removable torque rod and spring guide brackets . . . for positive alignment, easier replacement. (10) Rubber torque rod bushings and rubber spring seat bushings . . . eliminate metal-to-metal contact. Require no lubrication.

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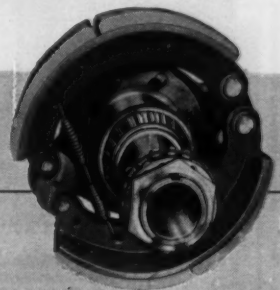

• Brake shoes made of steel save up to 40 pounds per axle . . . give strong braking action with no distortion • Patented liner shape—thickest where wear is greatest • Liners riveted on—no chance of movement on shoe • Liners circle-ground to cover all efficient braking area of shoe • Rust-proofed anchor pins locked in • First with self-aligning camshaft housings • Cam rollers heat-treated to roll smoother, wear longer • First with all-Nylon camshaft bushings • Compare similar products and prove to yourself that TDA brakes incorporate the finest quality materials, skilled workmanship and advanced design.

SAVE HOURS,

CUT COSTS ON YOUR

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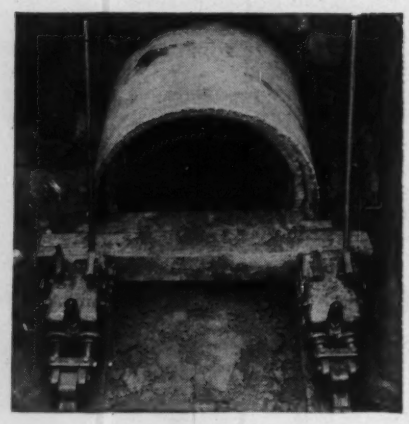
PUSH PIPE UNDER STREETS, TRACKS, walks, floors and other obstacles with a GREENLEE Hydraulic Pipe Pusher. One-man-operated, portable, simple to operate. No tearing up of pavement . . . eliminates extensive ditching, tunneling, back-filling, tamping, repaving. Cuts job time to a fraction. GREENLEE Hydraulic Pipe Pusher often pays for itself on first job. Two sizes—model shown above for pushing ¾ to 4" pipe. Larger unit, below, for pipe over 4", concrete sewer pipe and large drainage ducts. Power pump also available for extra ease and speed of operation.



GREENLEE

Write today for descriptive literature. Greenlee Tool Co., 2229 Columbia Avenue, Rockford, Illinois U.S.A.

(Continued from page 58)

E. Mast & Son, 1000 Greenwood St., Zanesville, O. CA general constr. 255-womens DORMITORY, NEW CONCORD, O. Est. **$500,000.** Muskingum College, Robert N. Montgomery, pres. New Concord, O. Bids July 29, Awarded Aug. 22, CD 7/18;
Limbach Co., 1183 Essex St., Columbus, O., heating and plumbing (New Concord, O.);
Lawrence Electric Co., 940 W. Main St. Zanesville, O., CA electric, (New Concord, O.).

Yates Constr. Co., 2039 Grafton Rd., Elyria, O. CA **$650,000,** 75-room MOTEL, Rte. 10 at Ohio Turnpike, incl. swimming pool, adjacent Howard Johnson Restaurant, NORTH OLMSTED, O. Interchange Manor, Inc., Ben Rabb, pres., Chester-12th Bldg., Cleveland 14, O. Awarded Aug. 14.

▲ **George W. Lathrop & Sons, Inc.,** 1510 Montcalm St., Toledo, O., CA Approx. **$2,500,000,** general constr. 7 story bsmnt. HOSPITAL addn., 6 story bsmnt. NURSES' HOME; CENTRAL POWER and HEATING PLANT, new LAUNDRY, 23 and Madison Sts., TOLEDO, O. Mercy Hospital, Sister Mary Blanche, admin., 23 and Madison Sts., Toledo, O. Bids July 1, awarded Aug. 18, CD 7/12 under LB;
Robert W. Carter Co., 125 S. Erie St., Toledo, O., CA **$1,075,000.** plumbing, heating, ventilating (Toledo, O.).

Hagerman Constr. Co., 403 Strauss Bldg., Fort Wayne, Ind., CA, **$800,000,** 6 DORMITORIES, on Campus, FORT WAYNE, IND. Concordia Senior College, Dr. Martin Neeb, pres., St. Joe Rd., Fort Wayne, Ind. Awarded Aug. 19. CD 8/16.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

Mo., St. Louis—BA 9/27—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 Blvd. and Market St., St. Louis, Zone 3, **(A)** garbage grinding plant bldg., 15 and Gratiot Sts. **(B)** equipment, incl. two grinders with 40-ton-per-hr. capacity each, etc. $230,000. Albert Osburg, 301 City Hall, St. Louis, Zone 3, archt. CD 7/26.

BUILDINGS—SLC

Tex., Dallas—NEWSPLANT—**A. H. Belo Corp., & Dallas** Morning News, Young and Houston Sts., soon lets contract remodeling, alterations, addns. existing newsplant bldg. $350,000. George L. Dahl, 2101 N. St. Paul St., archt.-engr. CD 10/25/46.

HEAVY CONSTRUCTION—LB & CA

† **O. B. Ashbach & Sons,** 2975 Hamline Ave. North, St. Paul, Minn., LB, **$206,812** (3 bidders) railroad spur, parking area and rehabilitation of roads, Twin Cities Arsenal, ENG-21-018-56-2, MINNEAPOLIS, MINN. U. S. Eng., 1217 U. S. Post Office & Custom House, St. Paul, Minn. Bids Aug. 24. CD 8/19.

F. Morettini, 1416 Maryland Ave. East, St. Paul, Minn., LB, **$254,664** (6 bidders) Trout Brook extension to Rice St. and sewer in Rice St. from Cottage to Larpenteur Aves., ST. PAUL, MINN. City, 253 City Hall, St. Paul, Minn. Bids Aug. 23. CD 11/9/53.

▲ **IOWA**—State Hy. Comn., Ames,
Iowa—Booth & Olson, Inc., 529 Insurance Exchange Bldg., Sioux City, Iowa, LB, **$175,445,** c. conc. 0.715 U-59 (6) Fayette Co.; LB **$74,153.** c. conc. pavement wid'n. 3.498 mi. FN-37, Buena Vista Co.; LB **$373,939.** c. conc. pavement wid'n. 15.474 mi. P-1073 Buena Vista and Sac Counties; LB **$191,615** c. conc. pavement wid'n. 7.562 mi. FN-721, Carroll Co.; LB **$275,309,** c. conc. pavement wid'n. 12.775 FN-1053, Crawford Co.; LB **$150,997.** c. conc. 6.856 mi. FN-275 Plymouth Co.; LB **$123,018.** c. conc. pavement wid'n. 5.913 mi. FN-342 Plymouth Co.; LB **$260,962** c. conc. pavement wid'n. 10.856 MI. P-612, Sioux Co.;
Iowa—Hickey Constr. Co., Keokuk, Iowa, LB **$87,064** c. conc. 0.67 mi. FN-416, Lee Co.;
Iowa—Concrete Materials & Constr. Co., 405 Granby Bldg., Cedar Rapids, Iowa, LB **$391,904** b. conc. 14.755 mi. FN-898, Adair and Guthrie Counties; LB **$171,366,** b. conc. 6.585 mi. FN-377 Ringgold Co.; LB **$412,020.** b. conc. 15.629 mi. F-947 (3) Story Co.;
Iowa—Alexander Constr. Co., 4641 Hiawatha Ave., Minneapolis, Minn., LB, **$332,310.** b. conc. 11.996 mi. P-744, Buchanan Co.;
Iowa—Green Limestone Co., Green, Iowa, LB **$212,859** b. conc. 7.198 mi. Special F-775 (6) Cerro Gordo and Franklin Counties;
Iowa—Mauer Constr. Co., Sac City, Iowa, LB, **$191,272** b. conc. 7.45 mi. Special FN-951, Clay Co.; LB **$336,283.** b. conc. 11.023 mi. Special FN-785, Greene and Webster Counties; LB **$165,800** b. conc. 6.659 mi. Special F-992 (2), Lyon Co.;
Iowa—Kaser Constr. Co., 3111 Ingersoll St., Des Moines, Iowa, LB **$155,936** b. conc. 5.724 mi. Special F-941 (6) Davis Co.; LB **$100,941** b. conc. 3.407 mi. Special FN-812 (1) Taylor Co.; LB **$104,136** b. conc. 3.519 mi. Special FN-812-A, Taylor Co.; LB **$91,565** b. conc. 3.049 mi. Special p-880, Taylor Co.; LB **$194,817,** b. conc. 4.895 mi. Special F-71 (10) Washington Co.; LB **$211,823.** b. conc. 5.168 mi. Special F-167 (7), Washington Co.;
Iowa—W. Hodgman & Sons, Fairmont, Minn., LB **$322,584.** b. conc. 12.04 mi. Special FN-168, Fayette Co.;
Iowa—Fort Dodge Limestone Co., Fort Dodge, Iowa, LB **$145,889.** b. conc. 5.752 mi. Special FN-546, Keokuk Co.;
Iowa—Norris Constr Co., Ottumwa, Iowa, LB, **$140,771** b. conc. 6.483 mi. Special FN-373-C, Lee Co.; LB **$145,602.** b. conc. 6.593 mi. Special FN-373-E, Lee Co.;
Iowa—Hargrave Constr. Co., 2424 Beaver St. S. E., Cedar Rapids, Iowa, LB **$461,606.** b. conc. 8.27 mi. Special F-1014 (4), Linn Co.;
Iowa—Hallett Constr. Co., Crosby, Minn., LB, **$297,213** b. conc. 6.584 mi. Special F-176 (3) Tama Co.; LB **$116,940.** b. conc. pavement wid'n. 6.173 mi. wid'n. FN-318, Hamilton Co.; LB **$233,087** b. conc. 13.179 wid'n. FN-139 (1), Hancock Co.; LB **$247,476.** c. conc. pavement wid'n. 12.037 mi. wid'n. FN-139 (2), Hancock and Winnebago Counties; LB **$212,334** c. conc. pavement wid'n. 12.031 mi. wid'n. FN-267 (1), Wright Co.; LB **$212,334.** c. conc. pavement wid'n. 12.862 mi. Wid'n. FN-267 (2), Wright Co.; LB **$129,973,** c conc. pavement wid'n. 6.387 mi. wid'n. FN-30, Winnebago Co.;
Iowa—H. H. Mass, Algonquin, Ill., LB **$267,870** c. conc. pavement wid'n. 14.933. Wid'n. FN-5, Buchanan Co.; LB **$270,403,** c. conc. pavement wid'n. 14.533 mi. Wid'n. P-1072, Buchanan and Delaware Counties;
Iowa—Ronald Kenyon Constr. Co., 415 Maple St., West Des Moines, Iowa, LB **$326,579.** c. conc. pavement wid'n. 16.349 mi. Wid'n. P-77, Jasper Co.; LB **$300,990.** c. conc. pavement wid'n. 16.752 mi. Wid'n. P-510, Keokuk and Mahaska Counties; LB **$251,262** c. conc. pavement wid'n. 10.369 mi. Wid'n. FN-70 Mahaska Co.; LB **$213,176.** c. conc. pavement wid'n. 11.168 mi. Wid'n. FN-260, Marion Co.;
Iowa—McDougal-Hartman Co., 3101 N. Adams St., Peoria, Ill., LB **$201,900.** c. conc. pavement wid'n. 9.306 mi. Wid'n. P-306, Washington Co.;
Iowa—Jensen & Krage, 2220 Hawkeye Dr., Sioux City, Iowa, LB, **$105,229** c. conc. pavement wid'n. 7.28 mi. Wid'n. FN-404, Woodbury Co.;
Iowa—R. B. Burch, Inc., 249 33 St. Dr. S. E. Cedar Rapids, Iowa, LB **$88,965,** grading 1.324 mi. F-899 (1), Iowa Co. Bids Aug. 23. CD 8/11.

▲† **Hyde Constr. Co., Inc.,** P. O. Box 687, Jackson, Miss., CA **$1,350,231.** rehabilitation existing roads and utilities, curbs, gutters, surfacing and drainage, Little Rock Air Force Base, ENG-03-050-55-15. JACKSONVILLE, ARK. U. S. Eng., P. O. Box 867, Little Rock, Ark. Bids June 27. CD 5/27.

† **MONTANA**—Bureau P. Rds., Dpt. Commerce, Post Office Bldg., Missoula,
Long Constr. Co., Lockwood Flats, Billings, Mont., LB **$453,427** (5 bidders) grading 20.792 mi., surf., rock production 22.404 mi. Ashland-Broadus Hy. Proj. 53-A2, B2, C2, D2, E1. Powder River and Rosebud Counties. Bids Aug. 22. CD 8/12.

† **Leigland Co.,** South of Great Falls, Mont. LB **$305,656,** est. $244,635 (two biddres), exchange sales store, Great Falls Air Force Base, ENG-45-165-56-3, GREAT FALLS, MONT. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Aug. 18. CD 7/14.

▲† **WYOMING**—Bureau P. Rds., Dpt. Commerce, Bldg. 40, Denver Federal Center, Denver, Colo.
Strong Constr. Co., Springfield, Utah, LB **$1,377,686,** est. $1,529,008. grading, base, surf. 20.966 mi. Proj. 1-AB and 1-AC, East Side Hy., Grand Teton National Park, Teton Co. Bids Aug. 25. CD 8/9.

▲ **NEW MEXICO**—State Hy. Dpt., Capitol Bldg., Santa Fe,
N. M.—Brown Contg. Co., 3525 4th St. N. W., Albuquerque, N. M., CA **$300,264,** controlled graduation sub-base, hot plant bit. surf., 3 concrete steel overpass structures each 3 spans 1.625 mi. spur on State Rd. No. 422, connecting State Rd. 422 to U. S. 85 north of Albuquerque, F. A. Proj. F FG-001-4 (9), Bernalillo Co.; LB **$624,446,** plant mix surf. 15.74 mi. U. S. 66 from Albuquerque westerly toward Correo. F. A. Proj. F. FI-003-3 (4), Bernalillo Co.;
N. M.—Jack Adams, Santa Fe, N. M., CA **$127,000,** surf. tr. 9.14 mi. S. R. 256 from jct. with S.R. 31 northeast of Loving easterly toward JA1, F.A. Proj. S 1271 (4), Eddy Co.;
N. M.—Floyd Haake, Agua Fria, Santa Fe, N. M., CA **$153,493,** grading 4.42 mi., four 25 ft. span pre-cast concrete bridge State Rd. 53 between Zuni and Ramah, F.A. Proj. S 1301 (3), McKinley Co.;
N. M.—G. I. Martin, 400 California St. S. E., Albuquerque, N. M., CA **$95,515,** grading, drainage, sub-base, surf. tr. 7.715 mi. State Rd. 309 from Frost School to U. S. 66, F. A. Proj. S 1413 (1), Quay Co. Grand total $1,300,718. Bids July 22. CD 7/15.

BUILDINGS—LB & CA

Edward Cassilly, Jr., Inc., 534 S. Elm St., Webster Groves 19, Mo., Owner Builds, **$344,707.** 36 brick, concrete RESIDENCES and GARAGE, General Sherman Dr. near Laclede Station Rd. AFFTON (St. Louis 23, P. O.) MO.

C. Rallo Contg. Co., Inc., 5000 Kemper Ave., St. Louis 19, Mo., CA, Total est. **$350,000** general contract 1 story, part ground, 63x196 ft. and 63x102 ft., brick, block, tile, concrete, steel parochial SCHOOL, Stansberry in Woodson Terrace Area, OVERLAND (St. Louis 14, P. O.) MO. St. William's Catholic Parish, Rev. Walter Boul, pastor, c/o Archdiocesan Bldg. Comn., Rev James Hartness, exec. secy., 3810 Lindell Blvd., St. Louis 8, Mo. Bids Aug. 18. CD 8/5.

The White Development Corp., 1695 Brentwood Blvd., Brentwood 17, Mo., Owner Builds, **$350,000.** two addnl. 1 story, brick, steel, concrete 90,000 sq. ft. Warson Village SHOPPING CENTER, 9900 Manchester Rd. between Berry and Sappington Rds., ROCK HILL (St. Louis 24, P. O.) MO. Bernoudy-Mutrux, 7 Forsyth Walk, Clayton 5, Mo., archt.

Metallic Building Co., Athens, Tex., CA **$95,125,** one brick PLANT bldg. to house kiln and dryer. ATHENS, TEX. Athens Brick Co., Inc., Athens, Tex. CD 5/31; **Miller Brothers,** Salisburg, N. C., CA **$225,000,** brick kiln (Athens, Tex.).

Anderson Constr. Co., Beaumont, Tex. Owner Builds. **$388,500,** 28 DWELLINGS; **$360,000,** 18 DWELLINGS, BEAUMONT, TEX. CD 5/24.

The Lusk Corp., Box 6204, Tucson, Ariz. Owner Builds. **$366,150,** (E) 25 DWELLINGS, EL PASO, TEX. CD 4/14.

L. L. Bair, Garland, Tex. Force Account, $389,900, 37 DWELLINGS, GARLAND, TEX. CD 4/19.

Briargrove Land Co., c/o R. L. Phillips, Almeda-Genoa Rds., Houston, Tex. Own Forces. $420,125, Unit 4, 20 DWELLINGS, HOUSTON, TEX. CD 5/3.

Robert P. Puig, The Builder, Villanova St., Houston, Tex., CA $369,125, Group 5, 12 all masonry DWELLINGS, HOUSTON, TEX. Memorial Forest, c/o Robert P. Puig & H. W. Edmunds, Villanova St., Houston, Tex. CD 4/27.

Lester L. Tatum & Assocs., 4685 Westheimer St., Houston, Tex. Owner Builds. $400,000. 15 all masonry DWELLINGS, HOUSTON, TEX. CD 5/5.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Ore., Portland**—BA 9/29—Comrs. Multnomah Co., Court House, 1st Section, four main piers Willamette River Bridge, $2,250,000. Moffat, Nichol & Taylor, Concord Bldg., Portland, and Sverdrup & Parcel, Inc., 220 Bush St., San Francisco, Calif., engrs. CD 8/18/54.

HEAVY CONSTRUCTION—LB & CA

† **Allison Honer Co.,** 312 N. Main St., Santa Ana, Calif., CA, $149,750. radio communications facilities, Marine Corp. Air Station, NOY 86704, EL TORO, CALIF. Dpt. Navy, Eleventh Naval Dist., San Diego, Calif. CD 10/22.

CANADA

HEAVY CONSTRUCTION—BA

Ont., Cooksville—BA 9/12—Toronto Twp., Twp. Offices, 150 ft. long, two equal spans rein.-con. steel girder bridge 30 ft. wide roadway, on Base Line Rd. at Credit River, $250,000. Plans deposit $25. W. A. Maxwell, c/o owner, twp. engr. CD 5/11.

HEAVY CONSTRUCTION—LB & CA

Rayner Constr. Ltd., 29 Commercial Rd., Toronto, Ont. LB $276,906, pavement wid'n., Woodbine Ave. TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. CD 3/23;
Miller Paving Ltd., 56 Blake St., Toronto, Ont., LB $271,290. pavement wid'n. Eglinton Ave. E., Contract 30-55 (Toronto, Ont.);
Dufferin Constr. Co., 2700 Dufferin St., Toronto, Ont. LB $85,548. b. conc. pavement part of the way with conc. base, curbs and gutters Keating St. Contracts 32-55 and 33-55, (Toronto, Ont.);
Standard Paving & Materials Ltd., Harbor Commission Bldg., Toronto, Ont. LB $194,658 pavement wid'n. The Queensway, Contract 31-55, (Toronto, Ont.).

BUILDINGS—LB & CA

Commonwealth Constr. Co. Ltd., 300 Royal Bank Bldg., Winnipeg, Man., CA $500,000. 1 story, 181x261 ft. WAREHOUSE, Northern Ave., FORT WILLIAM, ONT. Western Grocers Ltd., 289 King St., Winnipeg, Man.

Dr. J. Kuhl, 17 Fairleigh Cres., Toronto, Ont., Owner Builds, $900,000, 5 story 111-suite masonry, steel, concrete APARTMENT, Dowling Ave. TORONTO, ONT. Alex Tobias, 24 Cecil St., Toronto, Ont., engr. CD 5/9.

▲ **Adrien Legace,** 10 Legace St., Strathmore, Que., Owner Builds, $2,500,000, 100 bungalow HOUSING program, BEACONSFIELD, QUE.

Paul Rolland Constr. Ltd., 6545 Monkland Ave., Montreal, Que., Owner Builds. $840,000. 60-unit HOUSING program, MONTREAL, QUE. Central Mortgage & Housing Corp., 940 Cote de Liesse Rd., Montreal, Que., archt.

▲ **Damien Boileau Ltd.,** 705 Beaumont Ave., Montreal, Que., CA Est. $1,800,000. 4, 5 and 7 story bsmnt., 200x280 ft., rein.-con., brick, HOME for religious order, ROSEMERE, QUE. Les Freres du Sacre Coeur, 12085 Notre Dame St., S., Pointe aux Trembles, Que. Andre Marien, 4510 Cartier St., Montreal, Que., archt. Brouillet & Carmel, 3600 Barclay Ave., Montreal, Que., engrs.

▲ **Quebec Constr. Ltd.,** 11 Legace St., Strathmore, Que., Owner Builds, $1,500,000. 100-bungalow HOUSING program, ST. MARTIN, QUE.

PROPOSED PROJECTS

WATER SUPPLY

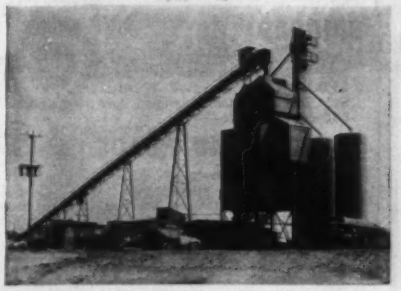
▲ **La., Lake Providence**—Town, Town Hall, municipal electric and water system addns., imprvs. $2,000,000. Barnard & Burk, 1023 Nicholson Dr., Baton Rouge, consult. engrs. CD 10/16/52.

SEWERS, WASTE DISPOSAL

▲ **Ky., Louisville**—City, Metropolitan Sewer Dist., 414 W. Jefferson St., plans by Joseph & Joseph, Speed Bldg., incinerator, $3,000,000. E. R. Ronald & Assocs., 554 S. 3 St., consult. engrs. Bids in September. CD 11/11.

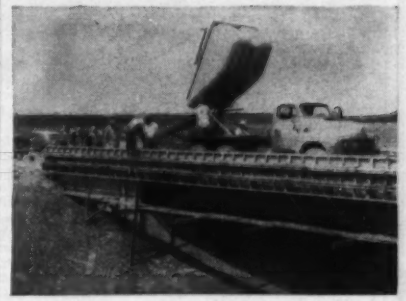
▲ **Tex., Tyler**—City voted bonds Aug. 20, sewage disposal unit, $500,000; storm sewers, $750,000; sanitary sewer collection lines, $2,000,000; sewage lift stations, $200,000; sanitary sewer rehabilitation work, $401,574. Wisenbaker, Fix & Assocs., Tyler, consult. engrs. CD 7/15.

▲ **Ont., Toronto**—Municipality of Metropolitan Toronto, 67 Adelaide St. E., Don River trunk sanitary sewer from Todmorden to 2,000 ft. north of Sheppard Ave. $2,526,000. Proctor, Redfern & Laughlin, 11 Jordan St., consult. engrs. CD 8/10/44.



1. Central plant produces 3 types of mixes

2. Dumpcretes haul 4 yds. to paving site



3. Same truck with different mix for bridge

4. Access road widening gets this 4 yd. load

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BROOKLYN 32, N. Y.

▲ **Que., Montreal**—City, City Hall, collector sewer in northwestern part of city, $10,000,000. Lucien L'Allier, c/o owner, dir. P. Wks. CD 10/25/44.

BRIDGES

▲ **O., Cleveland**—City, Dpt. P. Service, Louis L. Drasler, dir., City Hall, Zone 14, Jefferson Ave. Bridge, $3,000,000. Trygve Hoff & Assocs., 1922 E. 107 St., Zone 6, consult. engrs. John Heffelfinger, city bridge engr. CD 6/24.

STREETS AND ROADS

▲ **Mo., St. Louis County**—St. Louis County, c/o County Council, Luman F. Matthews, co. supervr., Court House, Clayton, Zone 5, section innerbelt highway 5.04 mi. from Page Ave. to Eager Rd. in Richmond Heights, $8,100,000; widening, imprv. 5.15 mi. Florissant Rd., Cool Valley Village to Hy. 140, $200,000; 2.48 mi. Sappington Rd., Gravois to Big Bend Blvd., $133,000; new feeder road, Eager Rd. to Brentwood Blvd. along old Kirkwood-Fergoson St. car right-of-way, $107,000; imprv. 1.05 mi. Lilac Ave. north to Bellefontaine Church Rd., $95,700; 0.48 mi. Kenerly Ave., Hodiamont Ave. to Myrtle Ave., $88,500; 5.55 mi. Kiefer Rd., Manchester Rd. to Vance Rd., $87,400; imprv. 3.3 mi. Laclede Station Rd. Big Bend and Wilshusen Ave. to Gravois Rd., $304,400; imprv. 14.7 mi. Clayton Rd., Conway Rd. to Eatherton Rd., $349,700; imprv. West Florissant Rd., Jennings Station Rd. to Chambers Rd., incl. widening 2.67 mi., $217,000; imprv. Midland Blvd. 5.9 mi. from Canton Ave., University City to Lindbergh Blvd., $831,600; wid'n., imprv. Union Rd., St. Louis city limits to U.S. Hy. 61-67, $653,250; imprv. Woodson and McKnight Rds., St. Charles Rd. to Midland Blvd. and Litzsinger Rd. to Manchester Rd., $480,800; constr., development city-county limits belt road involving portions Jennings Station Rd., Kienlen and Ogden Aves., 7 mi. from Bellefontaine Rd. to Skinker and Olive Blvds., $1,384,000; wid'n. Chambers, Airport and Brown Rds., St. Louis city limits to proposed outerbelt hy. west of Lindberg Blvd., 11.1 mi., $1,008,400. Fred H. Kiburz, Court House, Clayton 5, Mo., county hy. engr.

▲ **Tex., Tyler**—City, voted bonds Aug. 20, street imprvs., paving, $1,400,000. Wisenbaker, Fix & Assocs., Tyler, consult. engrs. CD 7/15.

EARTHWORK, WATERWAYS

▲ **Washington**—Puget Sound Power & Light Co., Stuart Bldg., Seattle, Zone 1, hydro dam across Upper Baker River, near Concrete. $35,000,000. Stone & Webster Eng. Corp., 49 Federal St., Boston, Mass., consult. engrs. CD 12/29/53.

▲ **Wisconsin**—Wisconsin Valley Imprvt. Co., 327 3 St., Wausau, dam and reservoir 2.75 mi. Little Eau Plein River, Marathon, Portage and Wood Counties, $6,000,000. Pioneer Service & Eng. Co., 231 N. La Salle St., Chicago, Ill., consult. engr. CD 6/11/54.

AIRPORTS

▲† **Calif., Muroc**—LABORATORY, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, computation laboratory, $190,000, Austin, Field & Fry, 2311 W. 3 St., Los Angeles, consult. engrs.; hangar and utilities, $2,500,000; medium thrust sewer and water sys., $250,000; access road $75,000; medium thrust electric lines and sub-station $150,000; 34.5 and 12. kv electric sys. addns., $300,000; aircraft research laboratory, $75,000; road to test station 1A, $200,000; combination research laboratory and utilities, $500,000, Edwards Air Force Base. CD 9/16/54.

▲ **Calif., San Francisco**—FACILITIES—United Airlines, San Francisco International Airport, San Francisco, plans by Skidmore, Owings & Merrill, 1 Montgomery St., facilities addns. incl. hangars, warehouse, maintenance facilities, at San Francisco International Airport, 40-acre site adjacent to airport, $6,000,000.

▲ **Colo., Denver**—HANGAR, etc.—Continental Air Lines, Stapleton Field, Denver, plans by Kahn & Jacobs, engrs.-archts., 2 Park Ave., New York, N. Y., hangar and office buildings. $7,000,000.

▲† **La., Lake Charles**—AIR BASE FACILITIES—U. S. Eng., Box 1229, Galveston, Tex., plans by Brown & Butler, and John H. Farrens, Jr., archts.-consult. engrs., Box 605, Baton Rouge, facilities, incl. sewage treatment and disposal, over $5,000,000; plans by Dunn & Quinn, archts.-consult. engrs., 1735 Ryan St., technical laboratory base, target intelligence training, club service, club NCO, etc., over $5,000,000; plans by Ricciuti & Assocs., archts.-consult. engrs., 302 Queen and Crescent Bldg., New Orleans, operations, base shop, operational training, organizational maintenance, dining hall, officers addn., commissary food sales, headquarters wing addn., dining hall, AM operational squadron bldg., etc., over $5,000,000, Lake Charles Air Force Base.

▲† **Tex., Abilene**—AIR BASE—U. S. Eng., 100 W. Vickery Blvd., Fort Worth, paving, fuel dispensing, training, appropriated troop housing, utilities, medical, storage, personnel, administration and community facilities, $4,214,000.

▲† **Tex., Ellington Air Force Base**—DORMITORIES, etc.—U. S. Eng., Box 1229, Galveston, plans by Stone & Pitts, archts.-consult. engrs.. 1872 Calder Ave., Beaumont, dormitories, dining hall, electrical distr. sys., etc. Over $5,000,000.

▲† **Tex., Kelly Air Force Base**—DISPENSARY, etc.—U. S. Eng., Box 1229, Galveston, plans by Fehr & Granger, consult. engr.-archt., 502 E. 5 St., Austin, Zone 1, dispensary, out-patient, headquarters squadron bldg., over $5,000,000; plans by David C. Baer, consult. engr.-archt., 1200 Bissonnett St., Houston, maintenance shops, club, officer, building, etc., Air Force Facilities, over $5,000,000. CD 6/27/51.

▲† **Tex., Lackland Air Force Base**—AIR FORCE FACILITIES—U. S. Eng., P. O. Box 1229, Galveston, plans by Grayson Gill, archt.-consult. engr., 1913 San Jacinto St., Dallas, Air Force Facilities, 5 classrooms bldgs., over 81,650 sq. ft. total, all utilities, storm drains, etc., $5,000,000. CD 9/14/51.

▲† **Alaska**—LIQUID FUEL PIPE LINE, etc.—U. S. Eng., Anchorage, liquid fuel pipe line, $900,000; nurses' quarters $800,000; dental clinics, $300,000; officers dining hall, $700,000; airmen's dining hall, $600,000; communications and electronics shop, $400,000; base rocket storage assembly, $300,000; high tensity lighting for airfield runway, $200,000; potable water supply mains, $100,000; chapel, $75,000, lighting, $50,000; primary runway and strengthen existing runways and taxiways, $4,500,000; blast and heavy warmup pad, $4,000,000; pipe line relocation, airfield and taxiway lighting, $3,500,000; nosewing hangars, $3,000,000; airmen's dormitories, $3,250,000; fuel hydrant, $1,750,000; underground storage tanks, $1,500,000; hardstands and dispersed parking, $1,000,000, Elmendorf Air Force Base. Bids to be called in February.

LATIN AMERICA

▲ **Mexico, Ciudad Acuna**—Ramon D. Bosques, domicilio conocido, Ciudad Acuna, plans office and radio station XERF. $4,000,000.

PUBLIC BUILDINGS

▲ **Calif., Grossmont**—SCHOOLS—Grossmont Union High School District, Grossmont, $2,250,000 bond election Oct. 14, high school in La Mesa-Spring Valley Area Terluf Brydergaard, 423 Date St., San Diego, archt.

▲ **Calif., Los Angeles**—HALL OF ADMINISTRATION—Los Angeles Co., Hall of Records, plans by J. E. Stanton, Paul R. Williams, Adrian Wilson & Austin, Field & Fry, 627 S. Carondelet St., Los Angeles, hall of administration in Civic Center, $16,318,000.

▲ **Calif., Los Angeles**—SCHOOLS—Los Angeles Bd. Educ., 1425 S. San Pedro St., plans by Heitschmidt & Thompson, 2010 Wilshire Blvd., Northwest Valley High School Haskell and Nordhoff Sts., $4,200,000; plans by Chaix & Johnson, 2504 W. 7 St., Bel Air No. 2 School, Roscomare Rd. and Mulholland Dr., $375,000. CD 4/8.

▲ **Conn., New Haven**—SCHOOLS—City, William J. Clancy, pres. Bd. Educ., plans by Schilling & Goldbecker, 18 Trumbull St., 2 high schools, $5,500,000.

▲ **Mich., Oak Park**—SCHOOL—City, Louise Shaw, clk., voted $4,500,000 bonds school construction. O'Dell, Hewlett & Luckenbach, 950 N. Hunter Blvd., Birmingham, archts. CD 8/11.

▲ **Mo., St. Louis**—WORKHOUSE—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 and Market Sts., Zone 3, plans by Albert Osburg, 301 City Hall, city workhouse, $3,000,000, Walter Crecelius, 301 City Hall, Zone 3, engr. Bids early in 1956. CD 6/7.

▲ **Pa., Erie**—CITY HALL—City, city hall, $4,000,000. CD 4/1/46.

▲ **Tenn., Memphis**—POWER PLANT—City, City Hall, power plant, $100,000,000. Burns & Roe, 233 Broadway, New York, N. Y., consult. engrs.

COMMERCIAL BUILDINGS

▲ **Calif., Inyokern**—HOUSING—Dpt. Navy, Eleventh Naval Dist., San Diego, plans by Hugh Gibbs, 441 E. First St., Long Beach, construct, manage and finance 300-wood frame, stucco dwellings at China Lake, Naval Ordnance Test Station, $2,500,000.

▲ **Calif., Los Angeles**—DWELLINGS—Pola, Inc., 9615 Van Nuys Blvd., Van Nuys, 413 frame stucco dwellings, Lassen, Plummer, Hayvenhurst Sts., Van Nuys District $4,265,000.

▲ **Calif., San Jose**—HOTEL—Sage Hotel, c/o Steindorf & Henderson, attys., Bank of America Bldg., plans by Bruce E. Heiser, 251 Post St., San Francisco, rein.-con., steel hotel $2,000,000.

▲ **Ill., Champaign**—SHOPPING CENTER—Mark Mercer, c/o Motel Mercer, Route 3, Urbana, shopping center, 40-acre site on West Springfield Ave. $2,000,000. Project to start in March, 1956.

▲ **Minn., Minneapolis**—BANK—First National Bank of Minneapolis, G. Murray, pres. First National-Soo Bldg., bank, 2 Ave. South and 6 St. $2,000,000.

▲ **O., Cincinnati**—SHOPPING CENTER—Shopping Centers, Inc., c/o P. Palazzolo, 2045 Gilbert St., 200,000 to 250,000 sq. ft. shopping center Paxton Rd. near Kilbourne Ave. $3,500,000 Frankenberger, Junker & Lensky, 2910 Woburn St., consult. engrs.

▲ **O., Dayton**—SHOPPING CENTER—Linden Shopping Center, c/o Sam Levin, 5327 W. Third St., will not construct 30-store shopping center, Xenia Pike between Woodman Dr. and Spinning Rd. $3,000,000. Project abandoned, zoning refused. CD 8/11.

▲ **Tex., Dallas**—HOTEL, etc.—A. L. Pate, Jr., Lang Floral & Nursery Co. & Assocs., 1214 Main St., plans by Jack Corgan, Melba Bldg., 18 story hotel, $16,000,000; auto parking garage, $400,000, at Haskell, McKinney and Central Expressway.

▲ **Tex., Houston**—OFFICE, etc.—Ada Oil Co., c/o K. S. Adams, Jr., 609 Hughes St., plans by D. Barthelme & Hamilton Brown, 2017 W. Gray St., 13 to 20 story office and garage. $3,000,000-$3,500,000. Walter P. Moore, 2 Pinedale St., consult. engr. CD 3/9.

▲ **Utah, Provo**—RESIDENCE HALLS—L. D. S. Church, 47 East. South Temple St., Salt Lake City, plans by Arnold H. Ehlers, 125 N. Main St., Salt Lake City, and Lowell E. Parish, 325 Dooly Bldg., Salt Lake City, men's residence halls and central bldg., Brigham Young University, $2,400,000. CD 6/8/53.

▲ **Wash., Tacoma**—OFFICE—Weyerhaeuser Timber Co., Tacoma Bldg., 12 story Over $1,000,000. Work expected to begin this year.

▲ **Que., Chateauguay**—HOUSING—Owner, c/o H. Joseph & Co. Inc., agents, 4492 St. Catherine St. W., Montreal, plans by Central Mortgage & Housing Corp., 940 Cote de Liesse Rd., Town of Mount Royal, Montreal Zone 16, 3,000 unit housing program, over $40,000,000.

INDUSTRIAL BUILDINGS

▲ **Ala., Mobile**—PLANT—Scott Paper Co., Market and Marcus Sts., Chester, Pa., plant, $200,000,000.

▲ **Calif., Los Angeles**—PLANT—Ford Motor Co., Mercury Div., 5801 South Eastern St., plans by Smith, Hinchman & Grylls, Inc., archt.-engr., 800 Marquette Bldg., Detroit, Mich., 1,300,000 sq. ft. automobile plant, 200-acre site, 4 mi. east of present plant. $1,000,000.

▲ **Conn., Willimantic**—PLANT—Jones & Laughlin Steel Corp., Gateway Center, Pittsburgh, Pa. cold finished steel bar plant.

▲ **Iowa, Cedar Rapids**—PLANT—Allis-Chalmers Co., P.O. Box 512, Milwaukee, Wis., plans by H. R. Green Co., engr.-archt., 417 1 Ave. S.E., Cedar Rapids, branch plant incl. 3 new bldgs. and present office bldg. addn. $1,800,000. CD 8/11.

▲ **Mo., Cape Girardeau**—MILL EXPANSION—Marquette Cement Mfg. Co., W. A. Wecker, pres., 20 N. Wacker Dr., Chicago, Ill., cement mill expansion, incl. one-kiln wet-process unit, complete with cement storage and bulk loading facilities at dock on Mississippi River, $6,500,000. CD 11/27/50.

▲ **Mo., Kansas City**—WAREHOUSE—Avon Products, Inc., 1535 Walnut St., plans by Charles E. Keyser, 609 Minnesota St., warehouse, $1,500,000.

▲ **N. J., Fairlawn**—BAKERY—National Biscuit Co., 499 W. 14 St., New York, N. Y., biscuit and cracker bakery. Over $2,000,000.

▲ **N. Y., Dunkirk**—PLANT and OFFICE—Allegheny Ludlum Steel Corp., Oliver Bldg., Pittsburgh, Pa., plant addn. and new office bldg., $1,000,000.

▲ **Okla., Ponca City**—REFINERY—Cities Service Oil Co., 1707 E. 6 St. Tulsa, refinery enlargement. $5,000,000.

▲ **Pa., Pittsburgh**—LABORATORY—H. J. Heinz Co., 1062 Progress St., plans by Skidmore, Owings & Merrill, 575 Madison Ave., New York, N. Y., laboratory, $2,500,000. CD 12/10/48.

▲ **Tex., Houston**—PLANT—United States Gypsum Co., 2411 Times St., gypsum mfg. plant, 30-acre tract, Ship Channel. $9,000,000.

▲ **Tex., Longview** — FACTORY, etc. — Bell & Gossett Co., Longview, new factory, $1,250,000; warehousing, $150,000, 13-acre site, 3 mi. out of Longview in Estes Industrial Dist. CD 7/21/54 under LB.

▲ **Va., Hornsbyville**—REFORMING UNIT, etc.-American Oil Co., 555 Fifth Ave., New York 17, N. Y., 7,600 bbl. per day reforming unit, 18,000 bbl. gas-oil desulfurization unit and 2 story office. $5,000,000.

▲ **Wash., Wenatchee**—POT LINES EXPANSION—Aluminum Co. of America, Alcoa Bldg., Pittsburgh, Pa., pot lines expansion at aluminum reduction plant. $2,000,000. CD 1/18/51.

▲ **Ont., Bancroft**—MILL—Bancroft Uranium Mines, Ltd., 25 Adelaide St., W., Toronto, mill, north of Belleville, $9,000,000. Kilborn Eng. Co., 36 Park Lawn Rd., Toronto, consult. engr. CD 8/12.

▲ **Que., Chicoutimi**—SMELTER and POWER DEVELOPMENT—Eastern Smelting & Refining Co. Ltd., 137 Wellington St. W. Toronto, Ont., nickel smelter and power development, $20,000,000. Chemical Constr. (Inter-American) Ltd., 244 St. James St. W., Montreal, consult. engr. CD 3/2/54.

UNCLASSIFIED

▲† **California**—NIKE SITES—U. S. Eng., 751 S. Figueroa St., Los Angeles, NIKE sites at various locations (Site 94) Control launcher and administration areas $1,000,000; (Site 40) control launcher, administration areas, $750,000 (Site 57) control launcher, administration areas, $75,000 (Site 73) control launcher and administration areas, $500,000.

▲ **Ill., Chester**—LINE CHANGES, etc.—Missouri Pacific R.R., W. H. Hobbs, ch. engr., Missouri Pacific Bldg., St. Louis 3, Mo., line change and grade revision on lines. $1,491,400.

▲ **Missouri**—UNDERGROUND GAS STORAGE RESERVOIR—Laclede Gas Co., 1037 Olive St., St. Louis, Zone 1, underground gas storage reservoir in 25,000 acre site, northeast of Florissant, St. Louis County, incl. buildings for compressors and dehydrators, series of pipe and valve sets at wellheads, etc. $10,000,000. Project upheld by courts to be in public interest. CD 7/24/52.

▲ **Utah-Colorado**—CRUDE PIPE LINE—Salt Lake Pipe Line Co., North Salt Lake City, Utah (subsidiary of Standard Oil Co. of California, 225 Bush St., San Francisco, Calif.) laying 182 mi. crude line from Rangeley, Colo., to Salt Lake City, Utah; 82 mi. new line will parallel existing line between the two cities. $7,280,000. CD 3/30/53.

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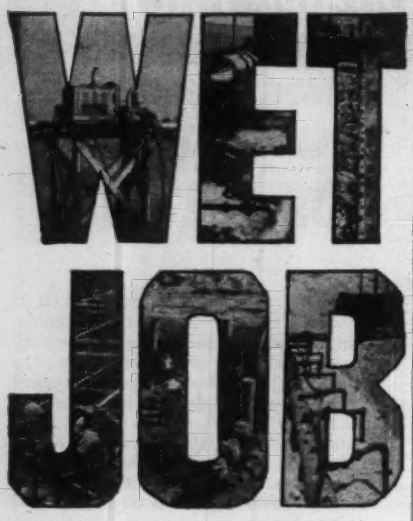

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

September 13, 20 Massachusetts

▲† Massachusetts—BA 10/5—U. S. Eng., 111 E. 16 St., New York 3, N. Y., Hoosic River Basin, Flood Control Proj., Unit No. 3, North Adams. $2,500,000. Plans deposit $50. CD 8/19.

BUILDINGS—BA

▲ Conn., West Hartford—SCHOOL—BA 9/29—Town, School Bldg. Comn., Mrs. Gordon S. Spencer, secy., Town Hall, elementary school, Braeburn Rd. $2,248,000. Louis Drakos, 967 Farmington Ave., archt. CD 6/28/54.

HEAVY CONSTRUCTION—LB & CA

▲ MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Central Constr. Co. of Lawrence, 6 Beacon Ave., Lawrence, Mass. LB $2,635,010, est. $3,000,000, highway relocation Route 3, Plymouth. Bids Aug. 23. CD 8/3.

BUILDINGS—LB & CA

▲ Barr, Gleason & Barr, Inc., 501 Fifth Ave., New York, N. Y. CA $2,000,000, two DORMITORIES, Foss Hill, north of Main Campus, MIDDLETOWN, CONN. Wesleyan University, c/o Bd. Trustees, Middletown, Conn. CD 6/22.

▲ F. H. McGraw & Co., 51 E. 42 St., New York 17, N. Y., CA, rehabilitation footwear products PLANT, NAUGATUCK, CONN. United States Rubber Co., 50 Maple St., Naugatuck, Conn.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

September 14 Delaware

STREETS AND ROADS

September 14 Delaware September 20 New Jersey
September 22 New York

BUILDINGS—BA

▲ Md., Baltimore—APARTMENTS—BA 9/16—Terrace Apartment Corp., c/o Associated Architects & Engineers (George E. V. Stone, engr.) and (George B. Dolby, architect) 100 Vermont Ave. N.W., Wash., D. C. 14 story, masonry, concrete, steel Terrace Apartments, Hunt Club Lane north of Lake Ave. $3,000,000-$3,500,000.

HEAVY CONSTRUCTION—LB & CA

▲ NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
N. Y.—Del Balso Constr. Corp., 500 Zerega Ave., Bronx 72, N. Y., LB $761,830, est. $750,000 (3 bidders) Cross Bronx Expressway, Cont. 1C (Anthony Ave.-Longfellow Ave.). 1.22 mi. FACBE: 55-1, Bronx Co.;
N. Y.—Chenango Corp., 22 Beverly Lane, North Syracuse, N. Y., LB $431,085, est. $486,000 (6 bidders) 2.17 mi. City of Oswego, East River Rd. and E. First St. FAC. 55-15, Oswego Co.;
N. Y.—Louis Mayersohn, 36 State St., Albany, N.. Y., LB $664,853, est. $727,000 (5 bidders) Gouverneur-Edwards, Pts. 1 and 2, S.H. 1263-1389. 3.96 mi. FARC. 55-70, St. Lawrence Co.;
N. Y.—Asphalt Roadways Co., 1766 Main St., Buffalo 8, N. Y., LB $327,984, est. $380,000 (10 bidders) McNails-Alabama, Pt. 1, S.H. 9338, McNails-Alabama Pt. 1A, 3.88 mi. FARC. 55-68, FASH. 55-9, Niagara Co.;
N. Y.—Serafini Constr., Inc., Conklin Rd., Binghamton, N. Y., LB $300,029, est. $324,000 (5 bidders) Altamont Village, S.H. 849, Dunnsville-Altamont, S.H. 1279, 0.96 mi. FARC. 55-55, Albany Co.; LB $272,522, est. $345,000 (10 bidders) Chemung-Van Etten, C. R. 3, 1.71 mi. FASS 55-6, Chemung Co.;
N. Y.—Binghamton Bridge & Foundation Co., Inc., Binghamton, N. Y., LB $102,789, est. $135,000. (7 bidders) Berkshire-East Berkshire Co. Rd. 202 0.14 mi. FASS. 55-2 Tioga Co.;
N. Y.—Camarco Contractors, Inc., Route 6, Carmel, N. Y. LB $861,905, est. $1,112,000 (4 bidders) Brewster-Carmel, SH 909, 2.09 mi. FARC. 55-66, FGRC, 55-67, Putnam Co.;
N. Y.—S. J. Groves & Sons Co., Empire Bldg., Syracuse, N. Y., LB $1,433,953, est. $1,651,000 (4 bidders) Massena-South Side Route, Pt. 2 (Cont. 1) Massena-Helena, Pt. 1, S.H. 1261, 5.02 mi. FASH. 55-7, FARC. 55-60, St. Lawrence Co.;
N. Y.—Yonkers Contg. Co., Inc., 25 Mile Square Rd., Yonkers, N. Y., LB $139,677, est. $156,000 (1 bidder) New York State Thruway-Hudson Sect.-Subd. 10 (Ardsley Gas Station-Restaurant site) (Type CM) H.T. 55-6, Westchester Co.;
N. Y.—West Shore Concrete Co., Inc., Hillburn, Suffern, N. Y., LB $479,971, est. $644,000 (6 bidders) Suffern-Mt. Ivy, S.H. 1448, 1.6 mi. FARC. 55-56, Rockland Co.;
N. Y.—Green Island Constr. Co., 594 Broadway, Watervliet, N. Y., LB $634,266, est. $796,000 (5 bidders) Thomson-Ft. Edward, Pts. 1 and 2, S.H. 1685A 8.93 mi. FARC. 55-57, Washington Co.;
N. Y.—Depew Paving Co., Inc., 161 Woodlawn St., Depew, N. Y., LB $2,853,617, est. $3,350,000 (4 bidders) New York State Thruway-Erie Sect. Subd. E-8A (Camp Rd. to Bayview Rd.); Camp Rd. Interchange; Athol Springs-Hamburg, S.H. 1067; Buffalo-Hamburg, S.H. 2 and 3 Secondary Cross Roads. 2.33 (Acc. 4.59) mi. E.T. 55-6, S.T. 55-8, R.C. 55-71, Erie Co.;
N. Y.—Johnson, Drake & Piper, Inc., 86 Trinity Pl., New York 6, N. Y., LB $3,547,010, est. $4,950,000 (8 bidders) New York State Thruway-Erie Sect.-Subd. E-1B (Barden Rd. to Westfield) and 5 marginal or cross roads 5.32 (Acc. 1.94) mi. E.T. 55-4, S.T. 55-6, Chautauqua Co.;
N. Y.—The Lane Constr. Corp., Box 911, Meriden, Conn., LB $2,473,001, est. $3,268,000 (14 bidders) Marcy Hill-Trenton S.H. 931; Trenton-Remsen, S.H. 1144; Trenton-Prospect-Remsen, S.H. 5345; Trenton By-Pass 5.61 mi. FGRC. 55-64, FARC. 55-65. FASH. 55-8, Oneida Co.; LB $1,951,881, est. $2,212,000 (8 bidders) Bemis Heights-Schuylerville 9.61 mi. FASH. 55-1, Saratoga Co.;
N. Y.—W. A. Chapman, 43 Market St., Brockport, N. Y. LB $191,961, est. $224,000 (5 bidders) Yates-Lyndonville-Ridgeway, S.H. 581, FARC. 55-9, Orleans Co.;
N. Y.—Bero Constr. Corp., McKinley Bldg., Buffalo, N. Y. LB $2,845,338, est. $3,925,000 (7 bidders). N. Y. S. Thruway-Erie Sect. Subd. E-2A (Westfield to Forest Rd.) Westfield interchange and 3 secondary cross roads 4.73 mi. 2.88 Acc. mi. E.T. 55-5, S.T. 55-7, Chautauqua Co.; LB $1,350,843, est. $1,553,000 (5 bidders) Wayne-Keuka-Penn Yan, Pt. 1, S.H. 1779, Keuka-Penn Yan, Pts. 2 & 3, S.H. 8435, 8523, 8.62 mi. FARC. 55-62, Steuben and Yates Counties;
N. Y.—Walter P. Blimm Co., Inc., 44 Lincoln Ave., Lockport, N. Y., LB $445,741, est. $482,000 (6 bidders) North Tonawanda-Sanborn, Pts. 1 & 2, S.H. 643, 3.15 mi. FARC. 55-61, Niagara Co. Bids Aug. 25. CD 7/29.
▲ NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
N. Y.—Bates & Rogers Constr. Corp., 600 W. Jackson St., Chicago 6, Ill., LB $1,614,182, est. $1,941,000 (9 bidders) New York State Thruway-Erie Sect.-Subd. E7B (Shadagee Rd. and Eighteen Mile Creek Bridge and approach); Shadagee Rd. 0.4 mi. E.T. 55-3, S.T. 55-5. Erie Co.;
N. Y.—Matthew DeGroot, Gouverneur, N. Y., LB $458,222, est. $472,400 (6 bidders) Bush's Bridge E-243 East Robinson St. Exten. 0.4 mi. M 55-3, Erie and Niagara Counties;
N. Y.—H. L. Baughman, Inc., 1240 Jefferson St., Rochester, N. Y. LB $171,561 est. $223,000 (5 bidders) East River Rd. (County Rd.). 0.56 mi. FASS 55-1, Monroe Co.;
N. Y.—Binghamton Bridge & Foundation Co., Inc., Binghamton, N. Y., LB $175,830, est. $232,000 (7 bidders) 0.45 mi. Ellicottville-Machias, Pt. 1, SH. 9212. FARC. 55-69, Cattarugus Co.; LB $91,116, est. $120,000 (8 bidders) 0.18 mi. Blodgett Mills-Cortland, S.H. 881, FARC 55-58, Cortland Co.;
N. Y.—Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y., LB $3,032,990, est. $3,337,000 (9 bidders) elimination of grade crossings of Long Island RR with various streets in the Hamlet of Baldwin and Village of Freeport, 0.35 mi. 1.56 RR mi. PSC. 7278, PSC. 8966, Nassau Co.;
N. Y.—Cedric W. Wood, 134 Ruskin Rd., Buffalo 21, N. Y., LB $243,338, est. $286,000 (5 bidders) 0.7 mi. Alden-Cowlesville, Pt. 2, S.H. 9040, Bennington-Attic, Pt. 1, S.H. 9042, FARC. 55-54, Wyoming Co.;
N. Y.—cancelled bids to have been opened Aug. 25, 0.08 mi. Rosendale-Tillson, C.R. 113, FASS. 55-4. Ulster Co., est. $275,000. Bids Aug. 25. CD 7/29.
▲ Great Lakes Dredge & Dock Co., Morgan Bldg., Buffalo, N. Y., CA $3,490,039, channel imprvs. at Chimney Island, near Ogdensburg, St. Lawrence Co. Spec. PA-5-11017, St. Lawrence Contr. No. 23, NEW YORK. The Power Authority of the State of New York, 270 Broadway, New York 7, N. Y. Bids Aug. 22. CD 8/23 under LB.
▲† Arthur Venneri Co., 300 North Ave., Westfield, N. J. LB $2,998,304 (11 bidders) hospital, incl. utilities, site imprvs., Plattsburgh Air Force Base, PLATTSBURGH, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Aug. 4. CD 6/30.
▲ MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
C. J. Langenfelder & Son, Inc., 8427 Pulaski Hy., Baltimore, Md., CA, $2,348,878, section of approach expressway 0.833 mi. incl. portion of toll plaza, 0.868 mi. access roads, 2 bridges 350 ft. and 166 ft. Patapsco Tunnel Proj., Contr. PT-107. Bids July 21. CD 7/25, under LB.

BUILDINGS—LB & CA

▲ Crown Havenhomes c/o Stanley H. Klein, archts., 89-31 161 St., Jamaica, N. Y. Owner Builds. $6,000,000. 400 HOUSES, Newbridge and Merrick Rds., BELLMORE, N. Y.

▲ South Oaks at Freeport, c/o Lane Realty, 107-40 Queens Blvd., Forrst Hills, N. Y. Owner Builds. $1,700,000. 107 HOUSES, South Long Beach Ave., FREEPORT, N. Y.

▲ Caristo Constr. Corp., 26 Court St., Brooklyn 2, N. Y. LB $4,267,000, (4 bidders) general constr. Aviation Trades HIGH SCHOOL, Queens Blvd., 47 Ave., 35 and 36 Sts., LONG ISLAND CITY, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y., Bid Aug. 16. CD 7/18;
Forsythe Plumbing & Heating Corp., 234 W. 55 St., New York 19, N. Y., LB $368,639 (8 bidders) plumbing (Long Island City, N. Y.);

Afgo Eng. Corp., 475 Adelphi St., Brooklyn 17, N. Y., LB $510,340 (8 bidders) heating (Long Island City, N. Y.);

▲ **Chapel Hill Homes**, c/o Lorenzo D. Bement, South Grove St., Freeport, N. Y. Owner Builds. $12,000,000. 1,000 HOUSES, Washington Ave. and Vanderbilt Parkway, NORTH BRENTWOOD, N. Y.

▲ **Roslyn Hill Country Estates**, c/o Harry Schwartz, pres., 10 E. 23 St., New York 10, N. Y. Owner Builds. $42,000,000, 1,500 HOUSES, 368-acre tract, ROSLYN, N. Y. Michael Radoslovich, c/o owner, archt.

▲ **South Oaks at Woodbury**, c/o Lane Realty, 107-40 Queens Blvd., Forest Hills, N. Y. Owner Builds. $1,800,000. 90 HOUSES, Woodbury Rd., east of South Oyster Bay Rd., WOODBURY, N. Y.

▲ **Palladino Bros.**, 1937 Williamsbridge Rd., New York 61, N. Y. Owner Builds. $2,000,000. 105 HOUSES, Gomer St. to be called Sunnyridge Estates, YORKTOWN HEIGHTS, N. Y.

▲ **Joseph L. Mascarelle, Inc.**, 42 First St., Hackensack, N. J., CA Total Est. exceeds $10,000,000. SHOPPING CENTER incl. 2 story bsmnt., 340,000 sq. ft. Bamberger Store, underground delivery tunnel, utility plant, water tower, PARAMUS, N. J. Garden State Shopping Center, c/o R. H. Macy, Herald Square, New York, N. Y. Abbott Merkt & Co., 10 E. 40 St., New York 17, N. Y., archts.-engrs. CD 5/28/52.

▲ **Becker & Lipschitz**, 4411 N. Broad St., Phila., Pa. Separate Contracts. $2,500,000. RESIDENTIAL DEVELOPMENT, Rte. 202, CHALFONT, PA.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

September 20 Florida

STREETS AND ROADS

September 21 Louisiana

HEAVY CONSTRUCTION—LB & CA

▲† **F. & C. Eng. Co.**, Box 2426, Houston, Tex. LB $9,892,629. (8 bidders) Low-Sill structure, Old River Control Concordia Parish, Inv. 5-6-2, LOUISIANA U. S. Eng. foot of Prytania St., New Orleans, La. Bids Aug. 26. CD 8/24.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

September 27 Ohio

STREETS AND ROADS

September 27 Ohio

BUILDINGS—BA

▲ **Ill., Centralia** — HOSPITAL, etc. — BA 9/15 — St. Mary's Hospital, Centralia, 1, 2, 3 and 4 story 100-bed hospital, chapel, nurses home, boiler house, etc. $2,500,000. Extended date. Maguolo & Quick, 4908 Delmar Blvd., St. Louis 8, Mo., archts. CD 8/1.

HEAVY CONSTRUCTION—LB & CA

▲ **ILLINOIS**—State Div. Hys., Centennial Bldg., Springfield,

Allied Structural Steel Co., 20 N. Wacker Dr., Chicago 6, Ill. CA $2,413,048, furnishing, structural steel and cast steel for 10 spans of bridge over Illinois River, F.A. 9, Peoria, Peoria Co. Bids Aug. 9, awarded Aug. 25. CD 8/15, under LB.

▲ **Ragnor Benson, Inc.**, 4744 W. Rice St., Chicago, Ill. CA, $3,000,000. mail handling facilities addns., tunnel and track work, CHICAGO, ILL. Chicago Union Station Co., Canal St. and Jackson St., Chicago, Ill. Awarded Aug. 23.

BUILDINGS—LB & CA

▲ **J. J. Altman & Co.**, 2950 Illinois Ave., East St. Louis, Ill., CA $2,383,000. general contract 2 story, brick, masonry, steel, rein.-con. HIGH SCHOOL, 51 and State Sts., EAST ST. LOUIS, ILL. Bd. Educ., East St. Louis School Dist. No. 189, 240 N. 6 St., East St. Louis, Ill. Bids Aug. 18, awarded Aug. 25. CD 8/26, under LB;

E. J. Maag Plumbing & Heating Co., East St. Louis, Ill., CA $738,686, plumbing and heating work (East St. Louis, Ill.).

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

September 15 Knasas

STREETS AND ROADS

September 15 Knasas

▲† **Texas**—BA 9/20—U. S. Eng., 100 W. Vickery Blvd., Fort Worth, Hampton Road Water Pumping Plant, Dallas Floodway, Trinity River. $3,000,000. CD 6/9/44.

HEAVY CONSTRUCTION—LB & CA

▲ **Lippert Brothers**, Boone, Iowa, LB $1,830,000, est. $1,600,000, (7 bidders) water treatment plant, ST. CLOUD, MINN. City, A. J. Haberkorn, clk., St. Cloud, Minn. Bids Aug. 23. CD 7/20.

▲ **Missouri Public Service Co.**, Richard C. Green, exec. vice pres., Warrensburg, Mo., Own Forces, $3,950,000. Proj. 1, Sch. G-3, incl. 10¾ in. O.D. steel gas transmission line New Franklin to Chillicothe, Mo. and 8⅝ in. line, Chillicothe to Trenton and laterals to serve towns in North Center Missouri, distr. systems in various towns, MISSOURI.

BUILDINGS—LB & CA

▲ **Cone Mills, Inc.**, Greensboro, N. C., indefinitely postponed constr. of textile MILL, $7,000,000; PRODUCTS STORAGE or WAREHOUSING, $250,000, SAN MARCOS, TEX. CD 4/18.

▲ **J. B. Gill Co.**, 2901 Orange St., Long Beach, Calif., CA Est. $3,000,000. GAS FRACTIONATION PLANT, NEWCASTLE, WYO. Natural Gas Products Co., Newcastle, Wyo.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

September 21, 22, 28 California

▲ **California** — BA 10/25 — Oakdale-Irrigation District and South San Joaquin Irrigation District, 322 E. "D" St., Oakdale, dam and power plant, Tulloch Dam and Power Plant, part of Tri-Dam Proj. $8,000,000. International Eng. Co., 74 New Montgomery St., San Francisco, engr. CD 12/10/52.

HEAVY CONSTRUCTION—LB & CA

▲† **Westinghouse Electric Corp.**, P. O. Box 868, Pittsburg, Pa. CA $6,338,491. furnishing generators for Chief Joseph Dam, Bridgeport, WASHINGTON. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. CD 2/4, under LB.

BUILDINGS—LB & CA

▲ **Snitily Bros. Constr. Co.**, Wenatchee, Wash., CA, Total Est. $2,000,000, excavation, grading, utilities, foundations, etc. for ALUMINUM PLANT. addn., WENATCHEE, WASH. Aluminum Co. of America, Alcoa Bldg., Pittsburgh, Pa. CD 8/25.

Bethlehem Pacific Coast Steel Corp., 3631 E. Marginal Way, Seattle, Wash., CA, steel frame work (Wenatchee, Wash.);

Great Northern Ry. Co., 175 E. 4 St., St. Paul, Minn., CA, track relocation (Wenatchee, Wash.).

▲ **Combustion Eng. Inc.**, 510 W. 6 St., Los Angeles, Calif., CA $5,737,451, two boiler units at Scattergood STEAM GENERATING PLANT, LOS ANGELES, CALIF. Los Angeles Dpt. Water & Power, 311 S. Spring St., Los Angeles, Calif. Bids July 5. CD 7/15, under LB.

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ **Canamont Constr. Ltd. & Canit Constr. Ltd.**, 507 Place d'Armes, Montreal, Que., CA, $7,107,480, Cote Ste. Catherine Lock and approaches in Lachine section of St. Lawrence Seaway Proj., Lachine, QUEBEC. St. Lawrence Seaway Auth., 1225 No. 2 Temporary Bldg., Ottawa, Ont. Bids Aug. 23, awarded Aug. 26. CD 8/1.

BUILDINGS—BA

▲ **Louis Ouellon**, 112 Roseberry Ave., Campbellton, N. B., CA, $2,398,448, (3 bidders) 300-bed provincial mental HOSPITAL addn., CAMPBELLTON, N. B. New Brunswick Dpt. P. Wks., Parliament Bldg., Fredericton, N. B. Bids Aug. 12, awarded Aug. 23. CD 8/1.

▲ **Fluor Corp. of Canada Ltd.**, 200 Bloor St. E., Toronto, Ont., CA, $5,000,000 (3 bidders) CATALYTIC REFORMER, incl. naptha processing equip., towers and tanks, SARNIA, ONT. Imperial Oil Ltd., 445 S. Christian St., Sarnia, Ont. Bids Aug. 15, awarded Aug. 25. CD 8/2.

AMERICANS ABROAD

HEAVY CONSTRUCTION—BA

▲ Bids will be taken on November 2 on the following project under International competitive bidding of NATO.

FRANCE

Service Special des Depots d'Hydrocarbures, French Ministry of Industry & Commerce, 85 Boulevard Montparnasse, Paris, supply and installation of 55 kilometer sect. of the Marseille-Langres pipe line between Lavera and Saint-Remey. $2,000,000. Interested firms must register their intention to bid before September 5.

▲† **Spain**—Bids Asked—Brown-Raymond-Walsh, Prime Contractors, Eng. Dpt., Edificio Espana, Madrid, Spain, pol storage and distribution systems at Rota, Moron, Torrejon and Zaragoza, for Bureau Yards & Docks, Navy Dpt., U. S. A. Plans will be available in September to American firms who have done comparable work within the last three years.

FOREIGN

HEAVY CONSTRUCTION—BA

▲ **Africa, Southern Rhodesia**—BA 11/25—Federal Hydro-Electric Bd, 1 Park St., Salisbury, concrete arch dam with spillway across gorge, underground power house intakes, tail race tunnels, shafts and other works, Kariba Scheme, Zambesi River, 40 mi. upstream from Chirundu. £12,000,000. Sir Alexander Gibb & Partners, Queen Anne's Lodge, London, S. W. 1, England, engrs. CD 7/29.

(Proposal Advertisements see pp. 82 to 86)

WELDED
STEEL
PLATE
FABRICATION

★ Boiler Casings
★ Boiler Breechings
★ Flues and Ducts
★ Condenser Shells
★ Condenser Piping
★ Heavy Turbine Housings
★ Fan and Blower Housings
★ Dust Collector Housings
★ Industrial Gas Mains
★ Expansion Joints
★ Hoppers and Bunkers
★ Tanks and Vats
★ Pressure Vessels
★ Wind Tunnels
★ Crane Bridge Girders
★ Trolley Frames and Trucks
★ Rigid Frames
★ Roll-Over Fixtures
★ Tank Turrets
★ Gun Mounts
★ Heavy Truck Bodies
★ Engine Frames and Bases
★ Crawler Frames
★ Press Platens and Beds
★ Press Columns
★ Heavy Machinery Parts and Assemblies
★ Gas Seal Hoods for Blast Furnaces
★ Furnace Roof Rings
★ Heavy Repair Welding
★ Design Conversion of Castings to Weldments

MACHINING
★ Complete Machining Service—Facilities for Heavy Work of Unusual Dimensions

STRUCTURAL STEEL
★ For Buildings, Bridges and Special Purpose Structures
Drum Gates
Roller Gates
Tainter Gates
Tainter Valves
Protection Angles

THE R. C. MAHON COMPANY
DETROIT 34, MICHIGAN
MAHON

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
October Materials, and Labor Prices, will appear in October 6, 1955 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots Gravel, 1½ in.	Gravel, ¾ in.	Sand	CRUSHED STONE Per ton, carload lots 1½ in.	¾ in.	CRUSHED SLAG Per ton, carload lots, f.o.b. plant 1½ in.	¾ in.	CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block Sand grav.	Lt. wgt. agg.	CONCRETE Ready Mixed 1:2:4; over. 50 c.y., del.
	Paper	Bulk	Mortar										
Atlanta	$3.97a	$3.56a	$3.40	$2.75	$2.75	$2.50‡	$2.14	$2.24	$1.45	$1.65	$0.18	$0.195	$12.25g
Baltimore	4.16a	3.75a	3.63	2.70‡a	2.70‡a	2.20‡a	2.75‡a	2.80‡a	1.95‡a	1.90‡a	.18	.18a	12.15
Birmingham	3.72	2.75e	....	2.53n	2.53n	2.08n	2.75	2.75	1.35	1.35	.165	.165	11.00
Boston	4.47b	4.11b	4.06	3.00a	3.00a	3.00a	1.60a	1.75a	.....	.....	.23	.265a	13.00h
Chicago	3.78a	3.32a	3.35	3.60‡b	3.60‡b	3.75‡b	3.50‡b	3.50‡b	2.25‡	2.25‡	.23	.23b	12.50
Cincinnati	3.95c	3.55c	3.73	2.19‡c	2.24‡c	2.24‡c	2.54‡c	2.54‡c	.....	.....	.18	.225a	11.60
Cleveland	N. A. in C. L.	3.34e	....	2.05‡f	1.85‡	1.65	4.10‡a	4.10‡a	3.35‡	3.15‡	.....	.22	15.45
Dallas	3.15a	2.85a	2.93	2.18	2.28	1.84	2.22	2.38	.....	.....	.11e	.267‡	9.40
Denver	4.44a	3.94a	4.44	1.85	2.00	1.20	.....	.....	.....	.....	.23	.255a	10.50
Detroit	3.89a	3.30a	3.54	4.50‡b	4.50‡b	4.00‡b	3.75‡	3.75‡	4.25‡	4.25‡	.21	.24a	12.80
Kansas City	4.10b	3.90b	3.90	1.65	1.65	2.00‡a	2.00‡a	2.00‡a	.....	.....	.20a	.24c	12.75b
Los Angeles	4.92ch	4.46ch	5.40	2.31‡a	2.51‡a	2.31‡a	2.16‡a	2.31‡a	.....	.....	.135f/m	.245m	12.37‡h
Minneapolis	4.20a	3.79a	3.71	2.70‡ag	2.70‡ag	1.60‡ag	3.25‡ag	3.25‡ag	.....	.....	.19‡	.....	12.75f
Montreal	3.11d	2.86d	....	2.20e	2.20e	2.25e	1.90i	2.20i	.....	.....	.17	.17a	10.80e3
New Orleans	3.50a	3.40a	3.48	2.44	2.44	2.00	....	....	1.45	1.65	.275	.....	12.90
New York	4.26a	3.85a	3.63	3.05bk	3.05bk	2.00bk	2.70bl**	2.70bl**	.....	.....	.....	.....	15.50an
Philadelphia	3.73/4.12‡a	3.42/3.79‡a	3.58/3.63‡	2.85‡‡p	2.85‡‡p	2.35‡‡p	2.45‡	2.55‡	2.00	2.35	.22/.26	.....	13.20ao
Pittsburgh	3.75a	3.56a	3.75	2.40‡	2.40‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.25d	.31	14.00
St. Louis	3.70/3.93c	3.25/3.51c	3.55/3.72	3.25am	3.00am	2.40/3.00am	1.60j	1.70j	1.50	1.50	.22	.28c	12.90
San Francisco	3.83c	3.39c	....	2.07	2.07	2.17	2.22	2.22	.....	.....	.....	.28cl	12.15e
Seattle	4.80a	3.55a	5.95h	3.50‡bm	3.50‡bm	3.50‡bm	4.00‡bm	4.00‡bm	.....	.....	.26	.3515	13.30f
Toronto	4.00	3.77	4.00	2.25	2.25	1.85	2.00	2.00	2.00	2.00	.25	.35e	14.95

‡ Delivered. * Prices incl. dealers discount except as noted.

CEMENT: *a Less 10¢ disc, 15 days. *b Less 2% disc, 15 days. *c Less 10¢ disc, 10 days. *d Truckload lots, deliv. 10¢ disc, 20 days. *e Truckload lots, destination price. *h LCL.

SAND GRAVEL, STONE & SLAG: *a Truck lots. *b Per cu. yd. *c 5 tons or more *e ½". *f Pea gravel. *g Less 5% for cash. *h Less than 5 tons. *i Sales tax incl. *j F.o.b. quarry. *k Barge lots asd. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars. *o 1-3 mi zone. *p Add 10¢ for ea. add'l mi zone. *** $2.80 eff 9/16.

CONCRETE BLOCK: *a Cinder *b Waylite. *c Haydite. *d Celocrete *e 5¼ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *i Less 2% for cash *l F.o.b. plant San Rafael. *m F.o.b. yard.

READY MIXED CONCRETE: *a 5 cu. yds. or over del. Man. *b 25 cu. yds or more. *c 10-100 cy. brackets. *d 1-3 mi. zone. *e 2,000 lb comp. *f 2,500 lb. comp. *g Less 25¢ disc, 15 days. *h Less 50¢ for cash. *i 5% off for cash. *j 2% off for cash. *k Federal tax included. Add 5% mum. & prov. *l 1:2½:3½. *m F.o.b. yard. *n Plus escalator clause. *o Add 15¢ for ea. add'l 3-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 40¢ per bbl., not refundable.

	Duix		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.90†	Buffington, Ind	$2.85†	Steelton, Minn	$2.95†	Muskegon, Mich	$3.00†	Toledo, O	$2.90†
Cllnchfield, Ga	2.90†	Independence, Kan	2.80†	Leeds, Ala	2.75†	Saginaw, Mich	3.00†	Milwaukee, Wis	3.05†
Kingsport, Tenn	2.90†	Hannibal, Mo	2.85†	Duluth, Minn	2.95†	Wyandotte, Mich	3.00†	Green Bay, Wis	3.05†
West Des Moines, Iowa	2.95†	Northampton, Pa	2.90†	Hudson, N. Y	2.75†	Buffalo, N. Y	3.00†	Ironton, O	2.90†
Nazareth, Pa	2.90†	Universal, Pa	2.95†	Alpena, Mich	2.90†	Oswego, N. Y	3.15†	Montreal City	3.55
Bath, Pa	2.90†	Waco, Tex. (+ 10¢ tax)	2.85†	Detroit, Mich	3.00†	Cleveland, O	2.95†	W. Winfield, Pa	3.00†

† *Prices to hold for third quarter of 1955.*

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 10-lb. treat	PAVING ASPHALT Per ton, less than 80 penetration Tank car	Drums	ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration Tank car	Drums	CUTBACK ASPHALT MC Per ton Tank car	Drums	ROAD OIL Per gal. Tank car	ASPHALT EMULSION RSI Per gal. Tank car	Drums
Atlanta	.....	.....	.....	$26.00	$33.25	$0.115	$0.23	$0.125pw	$0.27pw	$0.15	$0.15	$0.25
Baltimore	150.00‡	75.00‡	.....	21.00i	.....	.085i	0.175i	.09iwp	.18iwp	.09i	.095i	0.185i
Birmingham	.....	57.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	22.00a	23.00a	22.00av	22.00av	.09+p	.....	.10a	.145aq	.22aq
Chicago	158.00‡	85.00‡b	3.50/3.55‡j	19.85b]	29.85b	18.85bv	28.85bv	.094bwu	.1740bwu	.0725b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	73.00d	5.03c	23.00A	.....	23.00i	.....	.1025‡wp	.....	.....	.1025‡q	.184q
Dallas	q	40.00	q	24.05	43.09	.1016	.2103	28.91	50.44	.098	.1087	.1960
Denver	.....	80.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	104.00	.....	27.21	.....	27.21v	.....	.135wj	.....	.0966	.....	.211
Kansas City	q	q	q	15.00cl	.....	17.50v	.....	.07wpj	.....	.055c	0.11	.....
Los Angeles	q	.....	q	16.00dmz	.....	16.00dvz	.....	18.00dzk	.....	17.00dv	.0825j	.1735j
Minneapolis	.....	.....	2.97A	25.00	.....	25.00	.....	0.105w	.....	0.095	.1075	.....
Montreal	q	q	q	27.00n	39.60n	.135n	.198n	16.50nuk	20.90nuk	.132n	.197na	.289na
New Orleans	.....	.....	.....	17.50e	....o	17.50ev	....o	.085ew	....o	.085k	.085kz	.....
New York	.....	.....	2.85f	23.89qCD	44.32qD	22.89wtCD	43.57wtD	.1023wCDf	.1889wDf	.....	.1023CD	.1918D
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.09uf	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00k	40.00k	.098	.11	.234
St. Louis	.....	.....	.....	18.76f	.....	.1704	.....	.0883wk	.....	0.1575	.10	.....
San Francisco	.....	67.50e	.....	17.50g	33.00gp	17.50phv	33.00phv	20.00gk	37.50gk	18.75v	.085hy	.....
Seattle	.....	.....	.....	17.50A	38.00A	17.25hv	.....	24.50K	.....	19.75hv	.085A	.095w
Toronto	.....	.....	4.03	23.80	46.67	0.19	0.24	0.20w	0.25w	0.17	0.20	.24

h Delivered.

PAVING BRICK & BLOCK: *a CL. *b 3 x 4 x 8. *c 2¼ x 8¼ x 4. *d LCL, truck deliveries. *e Not used. *f 2" interior 6# treat. *g 3" *h 2" tr, 8# *i 3 x 3⅝x1x 8½. *j 2½", 6 lb. tr.

ASPHALTS: *a Price at plant, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Segunda. *e F.o.b. Baton Rouge. *f F.o.b. Hartford. *g F.o.b. Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refinery, Baltimore. *j F.o.b. refinery, Inglewood, Calif. *k 50-110 penetr. *l Less than 100 penetr. *m 40/80 penetr. *n Tax incl. *o Drums not avail. Shipped in steel bbl. *q 40/85 penetr. *r In customer's drums. *s Shipped in drums, per drum. *t 85/200 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks. *y F.o.b. Oakland. *A F.o.b. refinery, Cleveland. *B F.o.b. Destrehan, La. *C Bulk. *D Prices based on transporting to Manhattan via truck. *E RC. *F Also RC. *G Also MS, SS. *H RC 0-5 incl. *I MC 4. *J MC, RC .0675. *K MC 3, 4 & 5. *L MS. *M MC 1-5, RC 1-5, .089. *N MC 3. *P F.o.b. refinery Savannah: $0.09/gal., tank cars; $0.20/gal., drums.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. struc- tural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$4.60	$4.50	$4.65	$9.25	....	$94.50	$113.00	$5.835	$7.90	$5.625	....
Chicago Area	4.60	4.50	4.65	9.25	$5.45	94.50	113.00	5.835	7.90	5.625	....
Pittsburgh Area	4.60	4.50	4.65	9.25	5.45	94.50	113.00	5.835	7.90	5.625	$11.50
Buffalo Area	4.60	4.50	4.65	9.25	5.45	94.50	113.00	5.835	7.90	5.625	11.50
Cleveland	....	....	4.65	9.25	5.45	.....	.....	....	....	....	11.50
Youngstown Area	....	....	4.65	....	....	.....	.....	....	7.90	....	....
Geneva	4.60	4.50	.....	....	....	.....	.....	....	....	....	....
Los Angeles	....	....	....	....	5.45	.....	.....	....	7.90	....	....
Pueblo	4.90	5.35	5.10	....	....	.....	98.00	5.835	7.90	5.625	12.40

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS 5 tons to carload lot Per 100 lb., base price New billet	REINFORCING BARS Rail steel	EXPANDED METAL LATH Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	EXPANDED METAL LATH Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq. ft., carload lots fob mill
Atlanta	$7.63	$7.42	$7.42	$38.00‡	$42.00‡	
Baltimore	7.63	7.00j	....	44.00	47.00	
Birmingham	7.40	7.20t	7.20t	51.00p	57.00p	
Boston	8.13a	7.82	7.82	44.00	48.50	
Chicago	7.28	6.23gu	6.23gu	46.00‡	56.00‡	
Cincinnati	7.75ak	7.56rr	....	42.50mm	50.00mm	
Cleveland	7.91	6.41e	....	41.00‡	45.50‡	
Dallas	9.06	7.25	7.25	49.00	52.00	
Denver	8.75	7.80e	....	48.00n	57.00mm	
Detroit	8.00	7.31	....	50.50	60.50	
Kansas City	7.95a	7.75	....	48.00	51.50	
Los Angeles	8.15fd	7.60	....	54.50	60.50	
Minneapolis	7.64d	8.06b	8.06b	42.50	47.00	
Montreal	7.70-8.15t9/7.75 S.15t	6.75i	8.65i	46.00k	51.00k	
New Orleans	....	6.20akz	....	66.00	60.00	
New York	7.77	7.35y	7.35y	44.50mm	51.00mm	
Philadelphia	7/7.15	7 30/7.45	....	38.00‡	42.00‡	
Pittsburgh	6.98	7.37z	6.95	39.78	41.90	
St. Louis	7.68e	6.75c	6.75c	55.00l	56.00l	
San Francisco	8.20	7.45j	....	44.00	52.25	
Seattle	5.35e	7.00cj	....	53.50w	59.50w	
Toronto	8.00e	6.55	6.55	53.50n	67.50n	

EXTRAS, per cwt—Quantity: less than 700#, +50¢; 700-1499#, +25¢; 1500-7999#, +10¢. Size: #2 +$2.20; #3 +$1.10; #4, +80¢; #5 +$2.50; #6, #7 +45¢; #8, #9, #10 +30¢. Bending: heavy, +30¢; light, +$2 (except in New York City and surrounding metropolitan area where bending must be done on the job). Engineering (details and placing from designs by others): over 500 tons, +45¢; 200-500 tons, +60¢ but not over $4,500; 20-200 tons, +60¢ but not over $2000; 5-20 tons, +70¢ but not over $240; under 5 tons, +85¢ but not over $70. Design only: +60¢

Quantity extras, per cwt: under 100#, +$6; 100-399#, +$3; 400-999#, +1.25; 1000-1999#, +30¢; 2000-4999#, base price; 5000-9999#, −10¢; 10,000-19,999#, −30¢; 20,000-29,999#, −50¢; 30,000# and up, −70¢

‡ Delivered. a 2000-9999#. b 10,000-15,999#, fob city. c 20 tons or over. d 10,000-19,999#. e fob plant. f incl. delivering in free zone. g CL. h list price; dominion tax exempt; add provincial and municipal taxes. i add dominion, provincial and municipal sales taxes. j intermediate and hard grade. k fob city. l delivered; contractor to do unloading. m copper alloy. n LCL. o asphalt coated. p del. of 500 sq. yd. or more. r 2% off for cash. s 2,000-4,999#. t add 15¢ del. u add 6.25¢ switch. v incl 15¢ del. x add 5¢ switch. y add 30¢ del. z add 10¢ del. A American made. C Canadian made. † Number system replaces inch system of classifying bar sizes. New system is based on number of eighth inches in diameter of bar. •• Aver. of Canadian & American.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEX•	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 8" Pr Cl. 150	ASBESTOS CEMENT PIPE 12" Saw Cl. 1	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTM C 14-41 12 in.	24 in.	WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnote							
													2½ & 3 in. Butt Weld† %	2½ & 3 in. Galv %	3½ to 6 in. Lap Weld† Black %	3½ to 6 in. Lap Weld† Galv %	8 in. Butt Weld† Black %	8 in. Butt Weld† Galv %	8 in. Lap Weld† Black %	8 in. Lap Weld† Galv %
Atlanta	113 6	$1.52	$2.53	$ .545	$1.27	$4.82	$12.925	....	.....	.....	$0.90m	$3.40m								
Baltimore	122.9	1.52	2.53	.574	1.07	4.455s	11.7875	$178.20	$274.80	99	2.70									
Birmingham	109 3	1.52	2.53	.42	.75	3.30mm	10.50mm	260.00‡	400.00‡	1.25m	2.75m									
Boston	125 5	1.54	2 32	609qrt	1.1745qrt	4.815qrt	12.505qrt	187.80r	289.20r	1.54mq	3.65mq									
Chicago	126.0	1.52	2 32	.77m	1.48m	6.25m	19.00m	150.00‡	270.00‡	.80	2.80									
Cincinnati	119.5	1 54	2 40	.644t	1.242t	4.77t	12.1975	240.00	370.00	.80m	2.95m									
Cleveland	126.8	1 54	2 40	.548v	1.053q	4.32v	11.48v	158.00m	245.65m	.85m	3.25m									
Dallas	125.7	1.54	2 66	.439	.799	4.00b	9.17b	.....	.....	.49	1.60									
Denver	131.4	1.62	2 66	.45n	.78n	3.48n	....	.....	.....	.74m	2.50m									
Detroit	126.8	1.54	2.40	.80	1.50	5.95	16.40	230.00m	350.00m	.95	3.82									
Kansas City	124.7	1.54	2.40	.56	1.00	4.13	11.20	250.00	480.00	.90	2.25y									
Los Angeles	131.1	1.62	2.32	.671	1.461	5.971	14.891	238.201	348.901	.95	3.75j									
Minneapolis	131.0	1.57	2.53	.76mo	1.38mo	5.70mo	....	.....	.....	1.65h	4.47h									
Montreal	.....	....	....	1.07u	1.73u	5.82u	8.93u	.....	.....	1.17h	3.11j									
New Orleans	116.0	1.52	2.53	.51	.925	4.91	....	280.00r	460.00r	.65	2.29									
New York	121.5	1.54	2.32	.77	1.47	5.75	14.99	.....	.....	1.15	3.00									
Philadelphia	120.9	1.52	2.32	.65	1.25	4.95r	12.65s	300.00‡	350.00‡	1.60h	3.95h									
Pittsburgh	127.5	1.54	2.32	.468m	.864m	3.88m	9.78m	152.00	244.00	1.05h	2.50h									
St. Louis	120.5	1.52	2.40	.56	1.03	4.23	9.80	180.00l	280.00l	1.30l	2.80l									
San Francisco	131.1	1.62	2.32	.74d	1.62d	6.59d	16.47d	235.00l	392.00l	1.05mm	3.30m									
Seattle	131.1	1.62	2.32	.51b	.91b	....	....	150.00e	.....	90k	2.85k									
Toronto	....	....	....	.78	1.425	5.70	....	157.00	280.00	.87	3.05									

Mill: Lorain, Ohio; Alliquippa, Pa.; Sparrows Pt., Md.; Benwood, W. Va.; Youngstown, O.; Indiana Harbor, Ind.; Sharon, Pa.; Wheatland; Etna, Pa.; Fontana, Calif.

†Threaded and coupled. a 3½ to 6 in. b Continuous weld. d 8 and 9 in. e 8 in.

•• Delivered. •a BEGINNING 8/4/55 PRICE INDEXES for CENTRIFUGAL CAST IRON PIPE (include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE $ PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes Birmingham, Ala., 109.3; Burlington, N. J., 118.1. Historical record for 20 cities January 1950 to date will be published in 1955 Cost Issue of ENR, Sept. 29, 1955. •b Extra strength ASTM C 200-44T. •c 4-in., $90. •d SS361-A. •e 30-in. •f 21 in. •g culvert pipe; reinforced, ASTM C 76-41. •h reinforced, ASTM C 75-41. •i reinforced, ASTM C 76-37. •j centrispun; no standard specs. in Canada. •k 2% off for cash. •l fob plant. •m truck delivery. •n LCL delivered, fob truck. •o listed price based on LCL (no min.). •p freight allowed to destination in city. •q ASTM C 13-40. •r CL fob origin, freight allowed. •s 2 ft lengths. •t 3 ft lengths. •u CESA A 60-1941 specs. used. •v standard strength. •w ss; add 20% for d.s.

* WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft. ("based on approx. $200 per net ton): Butt Weld ¼ in., 8½¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 78½¢. Lap Weld 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight rates plus 3% transportation tax to get destination price.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following „discounts" to get Pittsburgh mill price: Butt Weld—1 in. black, + 50.25, galv., + 78.50; 1¼ in. black, + 50.25, galv., + 78.0, 1½ in. black, + 46.75 galv. + 74.25; Lap Weld—2½ in. to 3 in. black + 52.50 galv. + 73.50; 4½ in. to 6 in. black + 49.50 galv. + 73.75 Add freight rates plus 3% transportation tax to get destination price.

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

	SHORT LEAF YELLOW PINE AND DOUGLAS FIR — All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face) *All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1. Lengths up to 20 ft.* (*Prices in italics*)								LONG LEAF Y. P. Merchantable grade up to 20 ft.		PLYWOOD Rail freight increment (See note for base price)	
	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	2x12 Rgh	12x12 Rgh	¾"	¼"
Atlanta †	$78.00	$80.00	$73.50	$74.00	$77.50	$81.00	$79.00	.....	.....	.....	.....	$22.32	$27.24
Baltimore *	92.00	97.00	94.00	94.00	98.00	102.00	112.00	.....	.....	$170.00	$185.00	25.92	31.60
	132.00g	*132.00g*	*132.00g*	*132.00g*	*132.00g*	*132.00g*	*158.00g*	*$145.00*	*$145.00*	.....	.....	.....	.....
Birmingham †	81.50	83.50	80.50	87.50	90.50	95.50	100.50	.....	.....	120.50	155.50	21.78	26.58
	105.00	*105.00*	*108.50*	*108.50*	*108.50*	*105.00*	*105.00*	*105.00*	*105.00*	.....	.....	.....	.....
Boston *	103/111a	112/119a	107.00a	107.00a	107.00a	107.00a	.....	.....	.....	.....	.....	25.92	31.60
'	*93.00n*	*93.00n*	*124.00*	*124.00*	*124.00*	*124.00*	*129.00*	*129.00*	*129.00*	.....	.....	.....	.....
Chicago **	100.00	103.00	96.00	111.00	119.00	120.00	115.00	.....	.....	143.00	143.00	22.45	27.37
	107.00	*107.00*	*119.00*	*118.00*	*118.00*	*119.00*	*126.00*	*126.00*	*126.00*	.....	.....	.....	.....
Cincinnati *	93.75	94.75	83.00	90.50	94.75	103.00	110.50	.....	.....	131.75	131.75	25.00	30.48
	101.75	*104.00*	*113.50*	*110.00*	*112.25*	*112.50*	*138.00*	*138.00*	*138.00*	.....	.....	.....	.....
Cleveland **	96.00	98.00	103.00	102.00	102.00	103.00	.....	.....	.....	.....	.....	25.37	30.93
	.....	.....	*118.00*	*119.00*	*119.00*	*120.00*	*129.00*	*129.00*	*129.00*	.....	.....	.....	.....
Dallas k‡	72.00	78.00	68.50	68.50	73.50	85.50	130.00	.....	.....	127.50	134.50	18.72	22.80
Denver *	Not in stock		*121.50*	*122.50*	*122.50*	*122.50*	*125.00*	*137.75*	*140.50*	.....	.....	13.92	16.98
Detroit ‡	115.00	118.00	108.00	115.00	118.00	118.00	.....	.....	.....	.....	.....	25.00	30.48
	125.00	*125.00*	*134.00*	*130.00*	*130.00*	*130.00*	*175.00*	*175.00*	*165.00*	.....	.....	.....	.....
Kansas City *	130.00	130.00	125.00	130.00	135.00	145.00	.....	.....	.....	.....	.....	16.56	20.16
	135.00	*135.00*	*135.00*	*139.00*	*139.00*	*140.00*	*160.00*	*180.00*	*205.00*	.....	.....	.....	.....
Los Angeles j	*107.00*	*107.00*	*107.00*	*107.00*	*107.00*	*107.00*	*125.00*	*133.00*	*133.00*	.....	.....	16.61ab	20.25ab
Minneapolis #	*135.00*	*135.00*	*140.00*	*140.00*	*140.00*	*140.00*	*175.00*	*175.00*	*175.00*	.....	.....	19.89	24.25
Montreal ab	92.00	100.00	92.00	92.00	110.00	125.00	.....	.....	.....	105.00	105.00	.....	.....
	155.00	*155.00*	*155.00*	*155.00*	*155.00*	*155.00*	*130.00*	*130.00*	*130.00*	.....	.....	.....	.....
New Orleans †	100.00	100.00	92.50	85.00	90.00	94.00	118.50	.....	.....	150.00	148.00	18.72	22.80
†	*117.50*	*117.50*	*121.00*	*127.50*	*127.50*	*127.50*	*140.00*	*140.00*	*140.00*	.....	.....	.....	.....
New York 3	112.50	115.50	125.00	127.50	127.50	127.50	167.50	.....	.....	250/270	250/270	25.92	31.60
	.....	.....	*127.50*	*127.50*	*127.50*	*127.50*	*165/175*	*170/180*	*170/180*	.....	.....	.....	.....
Philadelphia ‡	Range from $117.00 to $137.00					117/137	117/137	.....	.....	214/224	214/224	25.92	31.60
	Range from $131.00 to $163.00					*131/163*	*136/158*	*158.00*	*158.00*	.....	.....	.....	.....
Pittsburgh †	Range from $105.00 to $107.00						120.00	.....	.....	120.00	130.00	25.92	31.60
	125.00	*125.00*	*130.00*	*130.00*	*135.00*	*135.00*	*125.00*	*145.00*	*145.00*	.....	.....	.....	.....
St. Louis ‡	115.00	120.00	124.00	126.00d	136.00e	139.00e	.....	.....	.....	.....	.....	18.72	22.80
	.....	.....	*137.00i*	*138.00e*	*138.00e*	*142.00e*	*205.00e*	*205.00*	*205.00*	.....	.....	.....	.....
San Francisco A	*82.00*	*82.00*	*92.00*	*92.00*	*92.00*	*92.00*	*109.00*	*122.00*	*147.00*	.....	.....	12.22	14.91a
Seattle †	*80.00*	*80.00*	*80.00*	*80.00*	*80.00*	*80.00*	*86.00*	*86.00*	*96.00*	.....	.....	.....	.....
Toronto a	97.00	100.00	95.00	97.00	103.00	105.00	120.00	.....	.....	110.00	.....	.....	.....
	155.00	*120.00*	*122.00*	*130.00*	*130.00*	*130.00*	*135.00*	*140.00*	*140.00*	.....	.....	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: Bold Face Type, Southern Pine. Italics, Douglas Fir. *a Spruce. *b Tax exempt. *c 5M lots. *d 8, 10, & 12 ft. lengths. *e 8 to 16 ft. lengths. *g No. 1 common. *j 8ft. lengths. *k No. 3 common. *n †3. A incl rail rate from North west mills to San Francisco are $11.50 to $15.00 per M ft. bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Interior Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ¼", $170.00; on ¼", $191.00. Exterior ¼", $190.00, ¾", $212.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a Lower rate by water shipment. *b 50,000 lb. minimum.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS — Discounts from jobbers list, Feb. 1, 1950a, Single or Double Thickness		EXPLOSIVES — Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*	
	A quality	B quality		
Atlanta	79%	80%	$0.2440	Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U.S.: $1.75 per 100 lbs. higher in Canada.
Baltimore	78%d	80%d	.2440	
Birmingham	82%	83%	.1915	
Boston	75–10%	75–10%	.2440	
Chicago	74%	74%	.2440	
Cincinnati	76%	76%	.2440	
Cleveland	74–10–10%	74–10–10%	.2840	
Dallas	75%	75%	.2515	
Denver	77%	77%	.2490	
Detroit	74–10–10%	74–10–10%	.2440	
Kansas City	76–10%	76–10%	.2490	
Los Angeles	73%	73%	.2465	
Minneapolis	73–10%	73–10%	.2490	
Montreal	40–10–5%bc	40–10–5%b	21.35k	
New Orleans	78%	79%	.2490	
New York	80 2½%	80–2½%	.4050z	
Philadelphia	77%	79%	.2440	
Pittsburgh	78%	78%	.2165	
St. Louis	80–10%	80–10%	.2490	
San Francisco	61%	69%	.2440	
Seattle	73%	76%	.2465	

Glass: *a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B-quality. *b Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c Single thickness. *d Discount 6/15/52. *e Discount off. 12/31/54.

Explosives: * Cartridges of 1¼", 1½", 1¾", 2", 2¼", 2½", 3" diameters. Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *h F.o.b Beloeil (near Montreal), per 100 lb. forcite, 40% Forcite 60%, $23.10.

60% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.184	$0.2165	$0.2365
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.189 – .1965	.2215–.229	.2415–.249
Rocky Mtn. States	.189 – .2015	.2215–.229	.2415–.254
Pacific N. W. States	.1965–.199	.219 – .2315	.239 – .2515
Pacific S. W. States	.184 – .1915	.2165–.219	.2365–.2415

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail — Pine*	By Rail — Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	.....
12-in.—2-ft. from butt	6-in.	50 to 59-ft.	.54	.....
12-in.—2-ft. from butt	6-in.	60 to 69-ft.	.58	.....
12-in.—2-ft. from butt	6-in.	90 to 100-ft.	.....	.....
13-in.—3-ft. from butt	6-in.	91 to 100-ft.	.....	.....
14-in.—2-ft. from butt	6-in.	50 to 69-ft.	.50/.68	.....
14-in.—2-ft. from butt	6-in.	70 to 79-ft.	.78/.88	.93
14-in.—2-ft. from butt	5-in.	80 to 85-ft.	.83/.93	.94
14-in.—2-ft. from butt	5-in.	85 to 89-ft.	.....	1.00
14-in.—2-ft. from butt	5-in.	90 to 100-ft.	.....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:

		8"x8"x8' Untr.	8"x8"x8' Tr.		7"x9"x9' Untr.	7"x9"x9' Tr.
Birmingham	Hardwood, Grade 3	$2.00a	$4.05a	Gr.	$3.70	$5.05a
	Grade 2	1.80	3.90a	"	4 2.55	4.85a
	Grade 1	1.45	3.40a	"	3a2.10	4.50a
Chicago	Red Oak	.....	3.20a		.....	4.10/4.20a
New York	S. L. Sap Pine	2.00	4.00		3.00	5.00
	Mixed Oak	2.50	4.50		3.50	5.50
Philadelphia	Red Oak	2.95/3.70	4.50/5.75		3.58/3.90	5.50/5.75
St. Louis	White Oak	2.25	.....		2.75	.....
	Red Oak	2.15	2.70a		2.60	3.25a
	Sap Pine or Cypress	.....	2.60a		.....	3.20a
San Francisco	Douglas Fir	2.41ef	3.32ef		3.48bf	5.10caf

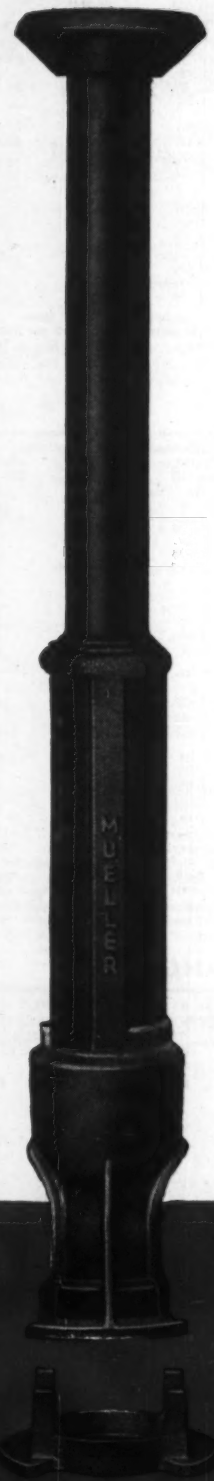
Tr.—Treated; Untr.—Untreated. a Creosoted. b 7"x9"x8'. c Empty cell. e Green f f.o.b. cars.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$5.02
Chlorine cylinders, liquid, per lb. f.o.n. works	.095
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	27.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	2.30
Soda ash, 58%, in paper bags, per 100 lb. dense	1.70
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.85
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	10.35

MUELLER®

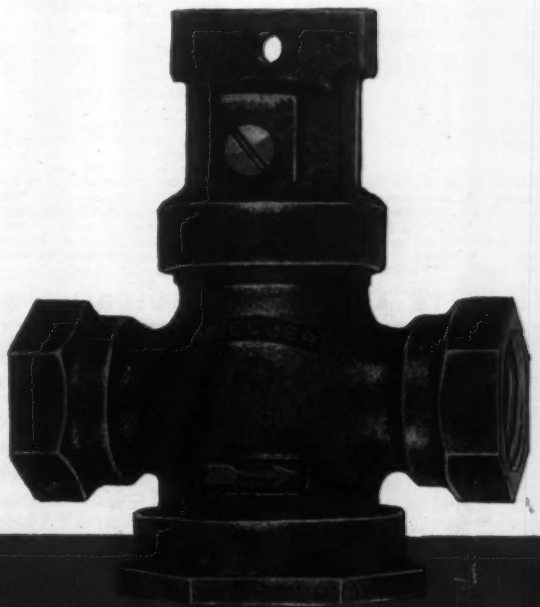


IMPROVED CURB BOX

Telescopic upper section prevents damage to stop, line or box from heavy loads . . . upper section held in any position by strong phosphor bronze spring . . . allows for grade changes, settlement or frost heave . . . cannot be pulled out of base . . . bronze-bushed lid assures easy removal of access plug at all times . . . curb box completely coated with tar base enamel . . . for stops in sizes from ½″ through 2″ . . . lengths from 2′ through 6′ . . . optional foot-piece centers stop and provides solid support for curb box.

INVERTED KEY CURB STOP

Tapered key individually ground and lapped for perfect pressure-tightness . . . key seated by base cap *and* water pressure . . . increase in water pressure automatically increases key-seating force . . . key is unseated for easy turning with downward pressure on shut-off rod . . . pressure instantly reseats key . . . combined cap and tee has accurate built-in check . . . all parts cast from finest waterworks bronze . . . various combinations of inlets and outlets for any type, or types, of service pipe . . . sizes from ½″ through 2″.



See your Mueller Representative, Catalog W-96 or write direct for detailed information on Mueller's full line of curb stops, curb boxes and related waterworks products.

MUELLER CO.

Dependable Since 1857

MAIN OFFICE & FACTORY DECATUR, ILLINOIS

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION—SCORED Per M. lots of 2,000 pieces or over,			STRUCTURAL CLAY TILE—LOAD BEARING—SCORED Per M. lots of 2,000 pieces or over,			BRICK Per M. in quantity		LIME Per ton, in paper, Carload lot,		
	3x12x12 in.	4x12x12 in.	8x12x12 in.	8x12x12 in.	10x12x12 in.	12x12x12 in.	Common backing	Straight hard	Hydrated finishing	Common hydrated	Pulverized or lump
Atlanta	$128.65	$128.65	$256.00	$288.00	.....	.....	$25.50	$26.50	.....	.....	.....
Baltimore	202.00	216.00	404.00	458.00	594.00	679.00	36.00*k*	41.00*k*	33.00	21.50	.....
Birmingham	126.00*p*	142.00*p*	253.00*p*	284.00*p*	354.00	438.00	27.00*ff*	32.00*gg*	29.25	24.00	.....
Boston	196.00†	209.00†	392.00†	283.75†	.....	.....	36.85*p*	40.35*p*	30.00†	28.00†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	28.00	30.00	31.00	27.00	.....
Cincinnati	205.00*j*	215.00*j*	295.00*jdd*	.....	.....	.....	45.00*j*	46.00*j*	27.50*j*	27.50*j*	.....
Cleveland	187.50**	200.00**	.....	.....	.....	.....	39.75	39.75	29.75	24.75	33.50*ee*
Dallas	.....	118.00	.....	.....	.....	.....	19.75	32.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	41.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	130.00	138.00	259.00	.....	315.00	360.00	39.00*cc*	40.00*cc*	36.00	32.00	.....
Kansas City	127.50	147.50	270.00	270.00	340.00	400.00	29.25	29.25	32.00	27.50	28.50
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	27.50§	.....	34.00	34.00	35.00
Minneapolis	181.00*p*	201.00*p*	414.00*p*	201.00*pw*	.....	.....	41.00**p*	47.00	40.00*bbe*	30.00*bbA*	42.00*bbda*
Montreal	165.00*aq*	181.00*au*	325.00*au*	230.00	248.00*s*	.....	39.50	46.00	39.20	22.00	13.75*u*
New Orleans	170.00	170.00	310.00	380.00	.....	.....	31.00	.....	.....	28.00	28.00
New York	151.90*h*	162.00*h*	222.70*ch*	245.40*hn*	.....	.....	41.00	.....	36.00	34.00	.....
Philadelphia	156.30	166.80	312.70	375.20	.....	.....	30/34	34/40	27.60	25.60	3.17
Pittsburgh	138.00	156.00	260.00	228.00	297.00	341.00	36.00	46.00*y*	25.00	23.00	2.97*m*
St. Louis	147.00*cc*	168.50*cc*	338.25*cc*	465.00*cc*	446.00	621.50	41.50*al*	43.00*s*	.95*aaa*	.75*aaa*	1.30*aaapee*
San Francisco	156.85a*	177.10a*	235.30*dda**	.....	.....	.....	39.50	.....	26.60	26.60	28.25
Seattle	225.00*cc*	250.00*cc*	350.00	250.00*ccw*	.....	.....	42.00*s*	54.00*s*	42.00*akk*	37.50	3.90*mkk*
Toronto	138.70	148.90	273.75	222.00*f*	.....	.....	41.50	59.00	40.50	33.50	29.00

*† F.o.b. yard Roxbury. *a Smooth. *b Per 50 lb. bags. *c 6 x 12 x 12 in.-3 cell. discount for cash. *t 5½ x 8 x 11¼. *u Tax exempt. *v Sand lime. *w 5 x 8 x 12. *y Stacked. *z Pebble lime price per 80 lb. sack. *aa Price per sack. Lime not sold per ton. *bb LCL. *cc Truck delivery. *dd 6 x 12 x 12. *ee Pebble lime. *ff 80% common. *gg Select. *hh Incl. § F.o.b. yard. *** Warehouse *d Pulverized hot. *e 5% 10th following month. *f 8 x 8 x 12. *g 5½ x 8 x 12. face. *m Per bbl., 180 lb. *n 7¾ x 7¾ x 12. Speed title. *p Truck lots. *q Provincial and Municipal tax extra. *r Not used because of earthquake danger. *s 2% delivery. ** F.o.b. Stockton. *h F.o.b. trucks, job site N.Y.C. *j Truck load or over. *k $1.00 discount. *l Red

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases In oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 380 lb. bbl. per ton
Atlanta	$17.75	$28.275	$3.26	$3.51	$3.01	$3.10	$2.91	$2.91	$0.60	$55.00
Baltimore	17.50	27.90	2.75	4.25	3.35	2.42	3.73	3.73	.44	48.32
Birmingham	17.75	28.275	3.90	3.40	....	2.78	2.55	2.55	.75*ff*	33.50*ee*
Boston	17.50	27.90	....	....	....	3 13*g q*	2.97*eq*	2.97*eq*	.42*q*	50.50*q*
Chicago	17.50	27.90	....	....	....	3.17‡*u*	3.02‡*o*	3.02‡*o*	42.00‡*bbr*	50.00‡
Cincinnati	17.50	27.90	....	....	....	2.88	2.60	2.60	.55*y*	49.36
Cleveland	17.50	27.90	2.24*pqq*	2.47*qq*	2.61*qq*	2.88*q*	2.60*o*	2.60*o*	43*y*	42.70*kk*
Dallas	17.75	28.65	....	4.05	....	3.50*q*	3.75*o*	4.35*o*	.36	58.50*k*
Denver	18.00	28.40	3.29	5.15	3.04	2.78	2.55*o*	2.55*o*	.43*ff*	45.00
Detroit	17.50	27.90	2.35	3.25	2.50	2.88	2.60*f*	2.60*f*	.55	46.00
Kansas City	17.50	28.65	3.50	3.00*ys*	2.65	2.78	2.58*o*	2.58*o*	.42	61.95
Los Angeles	17.50	28.15	3.30*n*	4.50*n*	4.20*n*	3.10*n*	2.25*en*	*l*	.64*ny*	*l*
Minneapolis	17.50	29.88/28.02	....	....	....	2.88*dd*	2.60*hidd*	2.60*hidd*	.48*idd*	44.00**
Montreal	.....	21.95	2.95*Dff*	4.05*Eff*	3.25*Fff*	4.05*t*	3.60*tf*	3.60*t*	1.00*kt*	3.60*k*
New York	17.50	27.90	....	....	....	2.88*G*	2.60*Go*	2.60*Go*	.48*Gx*	44.00*
Philadelphia	17.50	27.90	3.60	3 40/3.65	3.50/4.60	2.54	2.94	2.94	.37	26.00
Pittsburgh	17.50	27.90	2.68	2.85	3.15	2.75	2.60*o*	2.60*o*	.38	49.00
St. Louis	17.50	27.90	....	....	....	2.63	2.55*h*	2.55*h*	.42*y*	51.21
San Francisco	17.50	28.15	2.40	....	3.40	2.79	4.00*aa*	....	.43	.....
Seattle	17.50	28.40	3.07*mcc*	2.93*mcc*	....	3.45*mocc*	2.91*hmcc*	....	.59*mcc*	52.00*mcc*
Toronto	.....	.....	....	....	....	4.00	3.65	....	1.45	85.00

*‡ Delivered. * Note: Red lead in oil 50¢ higher than white lead in oil. *a Red lead prices change frequently due to pig lead price changes. *b U. S. War Dept. Spec. 3-49A. *c ASTM Spec. D266-31. *d 80% minimum ferric oxide. *e 15 lb. *f Per 432 sq. ft. *g F.o.b. yard, Roxbury. *h Per roll, 65 lb. *i Net carload lot prices; Minneapolis and vicinity. *k Per cwt. *l Not used. *m 1% discount for cash. *n F.o.b. city. *o Per 60-lb. roll. *p 6-drum. 50 gal. ea. *q Per 90-lb. roll* -r F.o.b. factory, Chicago. *s 466 Med. *t Federal tax included. *u Per 90-lb. square. *v Per ton. *w Price to large paint contractors is $1.25 less. *x Mineral surfaced. *y 55-gallon container. *z Drums. *aa Approximate cost per 100 lbs *bb Roofers coating and cement; Price per ton. *cc LCL, truck delivery. *dd 2% cash discount. *ee Asphalt pitch in 100 lb. package. *ff 5-gal. drums. *gg F.o.b. factory *hh Incl. freight. *D Std. Black. *E Ready-mixed. *F Over 80% ferric oxide ** Aver. wt. approx. 425 to 550 lbs. drums. *G Freight absorbed to destination not over .35 cwt.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER† Neat per ton	PLASTER† Gauging per ton	VERMICULITE† Home Insulation pellets	VERMICULITE† Plaster aggregate	VERMICULITE† Concrete AGGREGATE‡ Treated	VERMICULITE† Concrete AGGREGATE‡ Untreated	ALUMINUM SHEET^ Flat/ .102" th 38"x96" & 48"x144" per lb‡	ALUMINUM SHEET^ Corr roof .032" th 35"x12' per sht	STAINLESS STEEL SHEET*-TYPE 302*g* 20 ga 48"x96–120' per cwt^^	STAINLESS STEEL SHEET*-TYPE 302*g* 28 ga 36"x120' per cwt*mm*	COPPER WATER TUBING-TYPE L 2000 ft lots per ft‡ ½"*b*	COPPER WATER TUBING-TYPE L 2000 ft lots per ft‡ ½"*c*
			per bag of 4 cu ft									
Atlanta	$29.00	$36.00	$1.45	$1.35	$1.50	....	$0.359*n*	$7.067*n*	$53.68	$61.18	$14.49*f*	$20.29*f*
Baltimore	21.50	32.00	0.95	1.15	....	$1.15	0.391	0.427*r*	56.25	64.25	0.1518	0.2129
Birmingham	36.00	43.00	1.55	1.55	1.75	....	0.414	8.392	55.68	65.68	0.1727	0.2430
Boston	19.90	.....	1.15	1.18	....	1.30	0.44*q*	36.15*op*	55.81*dd*	61.585*ddff*	0.1704	0.2395
Chicago	24.60	24.60	1.45	1.50	1.50/1.60	....	0.418*o*	8.574*fp***	57.55*fee*	65.55*fee*	0.1588	0.2230
Cincinnati	21.60***	21.60***	1.75	1.75	1.85	1.75	0.445	8.34	57.60	69.30*ff*	0.1726	0.2430
Cleveland	26.00	40.00	1.25	1.32	1.40	....	0.369*aa*	7.569	58.25	63.25	20.63*f*	25.86*f*
Dallas	29.80	31.80	1.20	1.25	1.30	....	0.379	0.439*r*	55.00	63.00	0.1449	0.2029
Denver	24.00	24.00	1.40	1.30	....	1.50	0.399	8.339	61.25*gg*	62.57*gg*	0.1588	0.2230
Detroit	24.00	24.00	1.32	1.33	1.42	1.42	0.397	8.78	57.55	75.55	20.00*foo*	27.87*f*
Kansas City	30.00	35.00	1.20	1.30	1.40	....	0.416	9.94	60.72*ee*	68.72*ee*	22.52*f*	27.62*f*
Los Angeles	25.00	26.00	1.25*ii*	1.20*ii*	1.45*ii*	1.25*ii*	0.427	9.07	69.35	87.10	0.1588	0.2230
Minneapolis	31.00	31.00	1.30	1.60	....	1.80	0.425	7.68	58.26	71.01*ff*	0.1638*d*	0.2305*d*
Montreal	28.80	33.20	1.00	1.30	1.35	1.30	0.372	8.25	54.00	.....	0.29	0.350
New Orleans	35.00	37.00	1.50	1.20	1.25	1.25	0.359	0.366*aabb*	56.68	64.18	0.1449	0.2029
New York	23.00	29.00	1.25	1.20	1.40	1.30	0.42*fos*	8.50*f*	58.47	66.47	19.68*f*	27.69*f*
Philadelphia	23.25	32.00	1.35	1.35	1.35	1.40	26.50*fwz*	7.55*f*	53.23*f*	60.98*f*	14.49*f*	20.29*f*
Pittsburgh	25.00	29.00	1.25	1.25	1.30	1.25	0.42	9.19	56.81	62.63	0.1518	0.2129
St. Louis	30.00	37.00	1.25	1.50*jj*	1.60*jj*	1.50	0.45*io*	8.80*e*	56.64*kk*	75.64*kk*	15.88*fm*	22.30*fm*
San Francisco	24.00	26.00	1.05	1.03	....	1.24	0.416	8.14*cc*	71.85	.....	0.1681	0.2363
Seattle	33.00	36.50	1.45	1.25*k*	1.65	....	0.369	7.569	64.75*ee*	72.75*ee*	0.1449	0.2029
Toronto	32.50	40.00	1.20	1.45	1.45	1.35	0.38	20.35	56.00	88.00	0.2684*pp*	0.3374*pp*

† truckiots, delivered * carload ‡ delivered *a fob city *b ½" O.D. *c ⅝" O.D. *d 10M ft & over *e 2-10M ft; 10M ft & up: $0.1925/ft *f per 100 ft *g 5 tons & up; cold roll, anneal & pickled; 2B finish *h 15M lb *i 3003 alloy; 1100 alloy: $0.456/lb *j 1100 & 3003 alloy, mill finish *k per bag of 3 cu ft *l treated has air entraining agent; untreated does not *m 2-10M ft *n fob plant, fr allow *o 5M lb & up *p 100 sq ft quantity *q 2M lb quantity *r per lb *t 36" x 96;– 10.81 lb/sh; 48" x 144":21.7 lb/sh *u 19.31 lb/sh *v in 4M-lb skids; $0.296/lb in 1M-lb cases *w 48" x 144" *x 36" x 96" $13.25/sh *aa 16M lb & up *bb fob mill *cc 26" x 8–12' *dd add $0.75/cwt for boxing *ee 4 tons & up *ff 26 ga *gg add $2/cwt boxing; $0.75/cwt on skids *hh Theoretical wt for 48" x 96"; 50.4-lb. per sh. *ii 300-bag lots *jj per 100-lb bag *kk mill shipment; add $2 per cwt for immediate del *mm Theoretical wt: 19.7-lb per sh *nn Deliv, warehouse means *oo ¼" O.D. *pp Incl 10% sales tax *** 8% incr. expected within the month

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

	GYPSUM PLASTER BOARD tapered edge per Msq ft ½"	⅜"	GYPSUM BOARD LATH plain or perf per Msq ft ⅜" x 16" x 48"	GYPSUM SHEATHING tongue & groove per Msq ft ½" x 2' x 8'	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" sq ed	½" T&G	FIBER BOARD INSULATION sq edge, paint per Msq ft ½"	MINERAL WOOL INSULATION† loose, per 40-lb bag a	3" batts per M sf	GLASS FIBER INSULATION† loose, per 40-lb bag a	3" batts per M sf	ALUMINUM FOIL 60¢ Kraft 1 side foil per roll of 250 s. f.	Expansible Blanket 2 layers foil per Msq.ft.
Atlanta	.....	$65.00	$45.00	$75.00	$75.00	.....	$75.00	$1.08	$75.00	$1.45*b*	$85.00	.....	.....
Baltimore	$49.25*f*	43.50*f*	31.30*f*	53.00*f*	65.00*f*	108.50*f*	69.00*f*	1.30	66.50	1.60	45.00	$4.00*g*	$33.50
Birmingham	67.00	56.00	46.75	75.00	73.50	124.00	72.50	1.32	70.00	1.60	75.00	3.87*g*	.....
Boston	46.50*m*	41.00*m*	31.50*m*	48.00*m*	64.00*m*	109.00*m*	79.00*kn*	1.45	75.00	1.40	56.00	5.80	54.50
Chicago	67.00	50.00	41.00	57.00	80.00	117.00	76.00	1.60	84.00	....	62.00*bb*	5.25	.....
Cincinnati	46.40*w*	41.60*w*	30.80*w*	45.81*w*	65.00*w*	110.00*w*	65.00*w*	.....	61.00	1.25	75.00	3.31	45.50*w*
Cleveland	60.00	60.00	40.00	60.00	70.00	111.00	70.00	1.35/1.50	75.00	2.20	82.00	7.76*dj*	.....
Dallas	55.00	52.50	40.00	62.50	73.50	122.50	70.00	1.90	65.00	1.35	65.83	4.25	.....
Denver	60.00	52.50	40.00	60.00	72.90	123.00	71.90	....	71.00*i*	1.30	50.00	11.00*r*	21.00
Detroit	55.00	48.50	35.75	54.00	56.50	95.00	56.00	....	.....	1.95*b*	73.00	....	.....
Kansas City	65.00	55.00	40.00	65.00	72.00	120.00	75.00	1.40	80.00	1.40	80.00	15.45*dt*	25.75
Los Angeles	57.50	50.00	0.31*x*	57.50	71.87	121.25	80.00	....	83.00	1.35*	64.00	17.00*o*	25.40
Minneapolis	72.00	63.00	0.40*x*	65.00	70.00	114.00	70.00	1.30	78.00	1.30	78.00	6.50	.....
Montreal	60.00	52.00	39.00	53.00	60.00	.....	62.00	1.00	62.00	1.00	62.00	20.00*o*	50.00
New Orleans	65.00	50.00	45.00	65.00	65.00	100/115	70.00	1.95	79.00	....	.....	15.66*u*	.....
New York	50.00	44.50	34.00	51.00	67.00	108.00	66.00	1.55	69.00	1.90	72.00*k*	5.20	48.80*cc*
Philadelphia	50.00	48.00	34.00	48.50	67.50	105.00	49.20	....	63/70	....	70/75	5.50/6	34.50/44.50
Pittsburgh	68.00	57.00	42.50	70.00	70.00	108.00	65.00	1.80	70.00	1.80	70.00	4.10	.....
St. Louis	58.00	52.50	39.00	58.50	65/72.50	115/120	75.00	1.70	80.00	1.30	69.00	5.50	.....
San Francisco	49.00*z*	42.75	0.33*z*	53.00*k*	58.00	94.00	56.00	1.60	66.50	1.55	66.50	4.82*l*	52.50
Seattle	57.50	50.50	40.00	59.00	71.40	120.35	70.20	1.50*y*	81.00	1.65*z*	62.00*aa*	4.25*q*	.....
Toronto	61.00	50.00	40.00	64.50	75.00	.....	.....	0.90	47.00	....	51.00	21.50*o*	67.50

*a for hand packing *b per 30¢ bag *c carloads *d 40¢ kraft paper *f full trailer loads *g 80¢ kraft paper backing *h LCL *i flameproof $75.00 *j 133 lin ft; per 100 roll *k plain core; asph core $56/M sq ft *l 2-in: $52/M sq ft *m 10 ton quantities *n distributor's siding *o per Msf roll *p per sf *r per cwt *s per 35¢ bag *t per M sq ft *u honeycomb, 1¼-in *w fob city *x per sq. yd. *y 26¢ bag *z 32¢ bag *aa fob warehouse *bb 2' *cc in 250 sf rolls, of 16", 20", or 24" width.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$3.25	$2.60	$2.95	$2.70	$2.875	$3.00	$3.15*d*	$1.38	$1.38
Baltimore	3.20*d*	2.75	3.325*t*	2.55/2.70*Q*	3.075*t*	3.075	3.075*t*	1.675*t*	1.675*t*
Birmingham	3.25	2.60	2.925*k*	2.32	2.72	3.075*k*	3.125*k*	1.375	1.475
Boston	3.35*v*	2.925*k*	3.475*k*	3.40	3.45*l*	3.13*R*	3.20*d*	2.22*Y*	2.22*Y*
Chicago	3.55*k*	3.30*v*	3.50*k*	3.15*m*	3.625*y*	3.53*f*	3.44	2.50*k*	2.50*k*
Cincinnati	3.40	3.15	3.275*k*	2.925/3.175	3.225	3.28*N*	3.445*Z*	2.20	2.10
Cleveland	3.45*k*	3.40	3.40*k*	3.40	3.40	3.425	3.40*d*	2.65	2.65
Dallas	3.625	2.875	2.95	2.875	3.437	3.00	3.185*bb*	1.50	1.50
Denver	3.50	2.975	2.925*t*	2.83	3.375*t*	3.00	3.20*D*	1.925	1.925
Detroit	3.58*re*	3.324*q*	3.475*P*	3.30*rz*	3.49*rl*	3.62*H*	3.37*k*	2.55*rz*	2.55*rz*
Kansas City	3.625	2.85	3.00	3.045	3.325	3.18*O*	3.225*k*	2.105	2.13
Los Angeles	3.60	2.96*daa*	3.325*d*	2.79*d*	3.75*S*	3.25	3.44*d*	2.23*daa*	2.235*daa*
Minneapolis	3.325	2.90	3.07	2.85	3.13*Gr*	3.29*n*	3.075*d*	2.15	2.15
New Orleans	3.175	2.60	2.975*m*	2.85*m*	2.85*m*	3.10*k*	3.10*r*	1.475	1.475
New York	4.15*br*	3.73*bJ*	4.075*p*	3.99*J*	4.35*A*	3.66*aF*	3.978*bL*	2.592*V*	2.592*V*
Philadelphia	3.92*i*	3.30	3.63*jM*	3.07/3.82*r*	3.65*C*	3.80*ur*	3.615*g*	2.025	2.325
Pittsburgh	3.625*k*	3.275*k*	3.35*k*	3.425*k*	3.375*k*	3.50	3.375*k*	2.175*k*	2.08*d*
St. Louis	3.625*c*	3.225*h*	3.225*k*	3.225	3.50*k*	3.60*c*	3.50*E*	2.275*k*	2.275*k*
San Francisco	3.75*s*	3.16*s*	3.35*	2.96*s*	3.66*	3.35*U*	3.56*K*	2.275*s*	2.275*s*
Seattle	3.50*d*	2.76*d*	3.07*d*	3.00*d*	3.25*d*	3.135*X*	3.31*T*	2.35*d*	2.35*d*
Montreal*†	2.00	1.80	1.90	1.70	2.05	2.00	2.10	1.25	1.25
Toronto**	2.558	2.392	2.39	2.45	2.496	2.60	2.444	1.35	1.35

* Cost of living bonus now included in basic wage. † Plus 8% fringe benefits ** Incl. 4% vacation fund. *a 6 hr. day. *b 7 hr. day. *c Incl. 3% vac. stamp fund plus 7½¢ WF for bricklayers; 4% VF for electricians plus 8¢ WF, 1% PF. *d Incl. 10¢ H&WF. *e Incl. 10¢ VF. *f Incl. 6% WF. *g Incl. 11½¢ WF. *h $2.725 homes & housings plus 7½¢ WF. *i Incl. 17¢ WF. *j Incl. 10½¢ hr. WF. *k Incl. 7½¢ hr. WF. *l Incl. 4% VF *m Incl. 5¢ hr. WF. *n Incl. 8¢ H&WF, 6% VF, 1% PF. *o Incl. 10¢ PF, 7¢ WF. *p Incl. 3% WF, 3% PF. *q Incl. 10¢ ins; 4% vac. and holiday pay. *r Incl. 4% WF and 20¢ PF. *s Incl. 5% W&PF, 4% VF. 1% NC, 6 PH. *t Incl. 7½¢ H&WF. *u Incl. 1½% PF. *v Incl. 10¢ WF. *w Negotiating. *x 5¢ VP. *y Incl. 22½¢ WF. *z Incl. 7½¢ IF, 5¢ H&WF. *A Incl. 15¢ WF, 15¢ PF, 20¢ B.F. *B Incl. 3% WF. *C Incl. 15¢ WF. *D Incl. 10¢ H& WF, 5¢ organ. *E Incl. 6% WF, plus travel pay per day. *F Plus $4 per day Annuity contrib. *G Incl. 3¢ Prom. *H Incl. 7¢ WF, 6% VF. *I Incl. 15¢ H&WF, 5¢ for Advtg. *J Incl. 5% WF, 6 PH. *K Incl. 11¢ WF, 12½¢ VF, 10¢ PF. *L Incl. 3% WF, 3% PF, 2% VF, 1% EF. *M Incl. 7½¢ PF. *N Incl. 1% WF. *O Incl. 10¢ WF, 1% PF. *P Ibcl. 10¢ hosp. ins.; 5¢ vac. * Q drum, 2 drums $ 3.25/3.40. R Incl. 12¢ WF and 1¢ apprentice. *S Incl. 12½¢ H and WF. *T Incl. 21¢ H, W & VF. *U Incl. 7½¢ WF, 4% VF. *V Incl. 5% WF, 3% PF. *W Incl. 2% F. *X Incl. 6¢ VF, & 7½¢ H & WF. *Y Incl. 7¢ H & WF. *Z Incl. 9½¢ WF. *aa Plus 4¢ eff 9/15. *bb Incl 8¢ WF.

MEXICO CITY PRICES

In Pesos, F.o.b. City		June '55	July '55
Common Wages—Building (8 hr. day) (Peons)	av. per hr.	1.19	1.19
Common Wages—Heavy Const. (8 hr. day) (Peons)	av. per hr.	1.19	1.19
Skilled Labor Wages			
Carpenters (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Bricklayers (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Struct. Iron Workers (8 hr. day) Remachadores.	av. per hr.	1.37*	1.37*
Struct. Steel Shapes 3"-15" x 12 meters	per metric ton	1490.00	1490.00
Reinf. Steel, Corr. Rods			
¼" x 11 meters	per ton	1490.00	1490.00
⅜" x 11 meters	per ton	1490.00	1490.00
½" x 11 meters	per ton	1490.00	1490.00
⅝" x 11 meters	per ton	1490.00	1490.00
¾" x 11 meters	per ton	1490.00	1490.00
1" x 11 meters	per ton	1490.00	1490.00
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	70.00	70.00
Rose Gravel	per tr. load	65.00	65.00
Cement, Std. Port. (Toltecs)	per ton	185.00	185.00
Lumber			
3rd Class Pine	per M ft.	1400.00	1400.00
1st Class Pine	per M ft.	2000.00	2000.00
2nd Class Pine	per M ft.	1800.00	1800.00

* 1st & 2nd floors. Aver rate 4.38

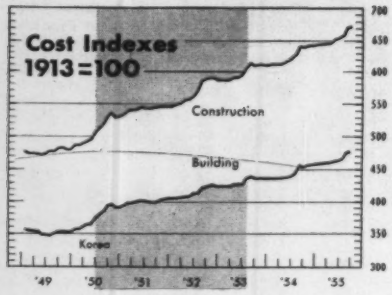
ENR Skilled Average (Bricklayers, Carpenters Iron workers): $3.273. **ENR Common Average** $2.087

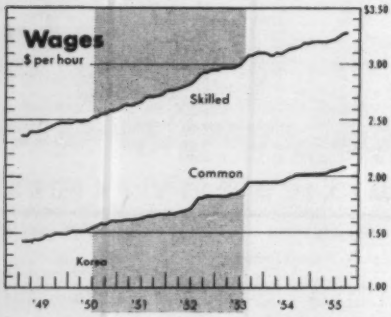
EQUIPMENT OPERATOR WAGE RATES

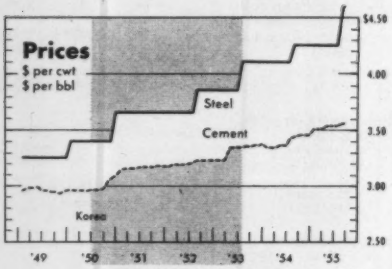
	Truck drivers 1½ T	—4 cy Dump	+4 cy	Tractor Operators incl bulldozers 34-49 hp	70-100 hp	100 & over	Tractor scraper 15-16 cy	Power cranes & shovels ½ cy	¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	$1.50*pp*	.....	.....	$2.425	$2.425	$2.425	$2.425	$2.95	$2.95	$2.425	$2.20	$1.60
Baltimore	1.675*	1.825*u*	1.925*	2.85/3.00*b*	2.85/3.00*b*	2.85/3.00*b*	285/3.00*b*	3.25/3.40*b*	3.25/3.40*b*	2.85/3.00*b*	2.85/3.00*b*	2.25
Birmingham	1.59	1.85*ff*	1.92*gg*	2.46	2.46	2.46	2.60	2.60	2.60	2.46	2.185	1.525
Boston	1.945*c*	.....	.....	3.025*d*	3.025*d*	3.025*d*	3.025*d*	3.40	3.40	3.40	2.555	2.22*e*
Chicago	2.12*ff*	.....	.....	2.90*ag*	3.05*ah*	3.10*ai*	2.90*a*	3.50*a*	3.50*a*	3.00*a*	3.00*a*	....
Cincinnati	2.10*j*	2.20*j*	2.30*j*	2.925	2.925	2.25	2.925	3.175	3.175	3.175	3.175	3.175
Cleveland	2.42*m*	2.42*m*	2.42*m*	3.15	3.15	3.15	3.15	3.40	3.40	3.15*k*	3.025*	3.025
Dallas	1.50	1.50	1.50	1.50/2.625*l*	1.50/2.625*l*	1.50/2.625*l*	1.50/2.625*l*	1.50/2.625*l*	1.60/2.625*l*	1.60/2.625*l*	1.50/2.00*l*	1.50/1.75*l*
Denver	2.05	2.05	2.15	2.66	2.66	2.66	2.66	2.83	2.83	2.66	2.66	2.275
Detroit	2.35**	2.35**	2.35**	3.30*m*	3.30*m*	3.30*m*	3.30*m*	3.30*m*	3.30*m*	3.30*m*	3.025*m*	2.68*m*
Kansas City	2.065*n*	2.065*o*	2.14*p*	2.25	2.80*q*	2.80*q*	2.80*r*	3.045	3.045	2.66	2.80*t*	2.19
Los Angeles	2.34*umm*	2.34*umm*	2.37*umm*	2.87*m*	2.87*m*	2.87*m*	3.28*m*	3.10*m*	3.10*m*	3.01*m*	2.50*m*	2.445*umm*
Minneapolis	2.15	2.15*v*	2.30*w*	2.53	2.75*q*	2.97*z*	2.75	2.97*y*	3.23*z*	2.53	2.42	2.25
New Orleans	1.575	1.575	1.575	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.15	1.575
New York	2.12¼*aa*	2.52*bb*	2.52*bb*	3.33*cc*	3.33*cc*	3.33*cc*	3.465*cc*	4.25*cc*	4.25*cc*	3.465*cc*	3.465*cc*	2.94*cc*
Philadelphia	1.825/2.025*u*	1.825/2.025*u*	1.825/2.025*u*	3.07/3.82*m*	3.07/3.82*m*	3.07/3.82*m*	3.07/3.82*m*	3.07/3.82*m*	3.07/3.82*m*	3.07/3.82*m*	2.80*m*	2.05*m*
Pittsburgh	2.275*u*	2.275*u*	2.275*u*	2.95*u*	3.275*u*	3.325*u*	3.325*u*	3.425*u*	3.425*u*	3.325*u*	3.325*u*	2.275*u*
St. Louis	2.275*uuu*	.....	.....	3.225*kk*	3.225*kk*	3.225*kk*	3.225*kk*	3.225*kk*	3.225*kk*	3.225*kk*	2.675*kk*	2.2675*kk*
San Francisco	2.30*u*	2.30*u*	2.315*u*	3.07*m*	3.07*m*	3.07*m*	3.07*m*	3.40*m*	3.40*m*	3.23*m*	2.68*m*	2.40*m*
Seattle	2.60*nu*	2.60*ndd*	2.80*nee*	2.75*m*	2.95*m*	2.95*m*	2.95*m*	3.30	3.30*m*	3.05*m*	2.75*m*	2.62*m*
Montreal ll	1.25	1.25	1.25	1.63	1.63	1.63	1.63	1.89	1.89	1.63	1.70	1.50
Toronto	1.51*ii*	1.51*ii*	1.72*ii*	1.98*ii*	1.98*ii*	1.98*ii*	1.98*ii*	2.45*ii*	2.45*ii*	....	2.13*ii*	2.13*ii*

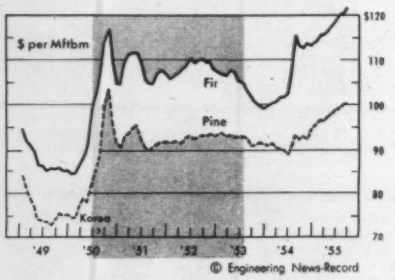
*a Incl 5¢/hr HWF *b lower rates, straight time, other broken *c 2-axle; 10-wheel $2.00; Euclid $2.20 *d Intermediate *e bldg constr; highway $2.145 *f less than 2-t *g blade *h scoop, bldg *i scoop, road *j plus $2 pd by employer for hosp. death benefits to family *k bldg constr; steel constr $3.40 *l higher rates are union, other taken from min wage scale approved by County Commissioners Court *m incl 10¢ H&WF *n flatbed *o under 10 cy *p over 10 cy *q over 50 hp *r blade grader *s form and subgrade *t single *u incl 7½¢ HWF *v up to 6 cy *w 6-8 cy *x cat oper *y up to 3½ cy *z 3½ cy & over *aa plus approx $5.30 per wk W&PF *bb incl 3% WF, 2% PF, 11 PH *cc incl 5% WF *dd up to 5 cy *ee 5 cy & over *ff over 1½ T but not incl 3 *gg over 3 but not incl 5 tons *hh excavating *ii incl 4% VP *jj includes 12¢ H, W & PF *kk 7½¢ WF included in base pay *ll Plus 8% fringe benefits *mm +4¢ eff 9/15 *nn 8 cy or less; 8-16 cy $2.875; 16-25 cy $3.125 *oo Plus $2.25/wk WF *pp 2-5 T $1.70.

SEPTEMBER CONSTRUCTION SCOREBOARD









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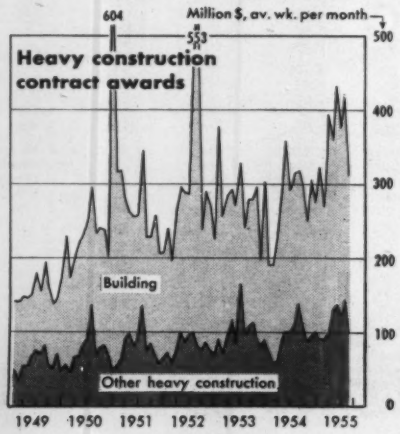


ENR INDEXES (1913 = 100), 20-cities' average	1955 Sept.	% Change from last Month	% Change from last Year
Construction Cost	672.80	+0.1	+5.1
Building Cost	479.21	+0.2	+5.5
WAGE RATES, 20-cities' average			
Common	$2.087	0.0	+3.7
Skilled (aver. 3 trades)	3.271	+0.3	+3.3
Bricklayers	3.522	0.0	+2.1
Structural Ironworkers	3.263	+0.5	+4.2
Carpenters	3.028	+0.2	+3.5
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.567	+0.3	+3.2
Structural Steel, (3-mill aver.), per cwt	4.600	0.0	+8.2
Sand, per ton	2.372	+0.4	+5.4
Lumber, 2x4 Fir, per M. ft. bm	121.388	+0.5	+7.4
Lumber, 2x4 Pine, per M. ft. bm	100.466	+0.4	+8.8
Common brick, per M	34.580	+0.1	+4.0
Ready-mixed concrete, per c. y.	12.601	+0.5	+3.3
Structural Clay Tile, 3x12x12 per M	162.571	+0.1	+0.4

CONTRACTS AWARDED (Millions)	1955 Aug.	1955 8-Months	% Change from '54 Aug.	% Change from '54 8-Months
Total U. S. (ENR reported)	$1,239.7	$12,348.0	−2.5	+32.1
Private	741.7	7,673.7	−6.4	+43.2
Public	498.0	4,674.3	+4.1	+17.1
Federal	61.3	1,166.7	−9.1	+44.4
ENR Volume Index, '13 = 100	508	611	−3.2	+26.8
NEW CAPITAL (Millions)				
Total	3,401.7	9,448.4	+148.0	+10.6
State & Municipal Bond Sales	249.7	2,837.5	+ 2.8	−22.4
Corporate Security Sales	131.3	2,204.9	0.0	+ 8.7
Federal (non-federal work)	119.4	941.7	+161.8	+25.3
Federal (federal work)	2,901.3	3,464.3	+204.7	+64.5

MATERIAL SHIPMENTS & LABOR SUPPLIES (millions)	1955 June (J) July (Ju)	6-Mos. 7-Mos.	% Change from '54 Mo.	% Change from '54 Yr.-Cum.
Cement, bbls. Bu. of Mines	31.260(J)	135.149(6)	+ 9.2	+10.6
Fabr. Struc. Steel, tons AISC	.218(Ju)	1.632(7)	−17.7	−13.5
Lumber, mil. ft. bm., NLMA	3.735(J)	19.966(6)	+14.4	+ 7.8
Lumber Prod., mil. ft. bm., NLMA	3.581(J)	19.391(6)	+14.6	+ 3.3
Contract Const. Employ., BLS	2.694(Ju)	2.414(7)†	+ 0.3	− 1.8

†Average

ENR CONSTRUCTION & BUILDING COST INDEXES IN 21 CITIES (1913 = 100)

	Construction Cost Sept. '55	Construction Cost June '55	Building Cost Sept. '55	Building Cost June '55		Construction Cost Sept. '55	Construction Cost June '55	Building Cost Sept. '55	Building Cost June '55
Atlanta	492	472	417	399	Los Angeles	705	672	483	457
Baltimore	595	575	472	452	Minneapolis	720	711	502	493
Birmingham	519	511	434	423	Montreal	532	525	412	405
Boston	709	696	488	471	New Orleans	547	535	451	439
Chicago	752	741	488	477	New York	794	750	548	533
Cincinnati	673	664	467	456	Philadelphia	721	711	533	523
Cleveland	785	762	489	477	Pittsburgh	690	669	498	489
Dallas	507	488	422	406	St. Louis	728	720	503	495
Denver	656	637	485	474	San Francisco	690	676	469	445
Detroit	776	763	503	490	Seattle	693	681	436	418
Kansas City	703	686	496	479	Toronto	552	543	449	449

August Contract Awards: The Pace Eases Up

Declines in private and federal work pull down the total 26% below July. But volume is still healthy

Heavy construction contracts slacked off in August from July's boom pace (ENR Aug. 4, p. 82). This is the first time in 1955 that contracts have shown any tendency to decline. The $1,240 million total was 26% below July's high volume and 2.4% below August 1954. Yet it was the third highest volume on record for August. The record was set in 1952, when a $1.2-billion contract for the Atomic Energy Commission's Portsmouth (Ohio) plant rocketed the month's total to $2.2 billion.

• **Private awards off**—Sharp declines in private construction and federal awards were mainly responsible for August's lower volume. Private mass housing dropped to an average of $89 million per week, lowest rate for any month this year, and 14% below July. This is the third consecutive monthly decline in housing awards. However, it still is a very sizable volume—60% above August of last year.

Commercial contracts also slumped sharply last month. Awards skidded to a weekly average of $24 million, the lowest since February. Industrial building was also off from the very high July rate, but the weekly average of $59 million was close to averages in other big months this year.

• **Federal slump**—The bottom dropped out of federal awards in August. Contracts fell to a weekly average of only $15.3 million, less than one-third of the high July volume and the lowest for any month since August 1954, which was itself a poor month. However, this decline in contracts does not indicate that contractors will have to look elsewhere for business in coming months. Congress has boosted appropriations for construction in this fiscal year. (See pages 21 and 22.)

• **State and municipal**—State and municipal work held up better than the other two categories mainly because of highway awards. In fact, August contracts set a record for the month—a weekly average of $109 million. Though 2% less than July, this is 6% above a year ago.

Highway awards held close to the July rate; the average was $44 million. This was about 12% higher than a year ago. Bridge awards declined from the high July weekly average, but were still fairly strong. Public buildings other than housing dropped to $35 million per week, after setting a very fast pace in July. But the August rate still compares favorably with other big months so far this year. Waterworks dipped to $6 million per week, while sewerage awards climbed to $7.4 million.

• **1955 to date**—Total awards so far this year are $12.3 billion, 32% above 1954 and 12% over the previous high in 1952. (That 1952 figure included more than $2.2 billion in atomic plants.)

Setting new records for the eight-months period are: Private work, up 44% over 1954 to $7.7 billion; state and local awards, up 10% over 1954 to $3.5 billion.

Federal awards racked up the biggest volume since 1952. They gained 44% over last year to a total of almost $1.2 billion.

• **Regions**—Since the end of the first half, two regions have extended their lead over 1954 volume. All regions remain ahead of last year.

The Mid-West's volume for the first eight months is 43% ahead of 1954, compared with a 31% increase at the end of June. New England has also stretched its gain from 21% at mid-year to 23% at the end of August.

By contrast, the 1955 gains are shrinking rather sharply in the other

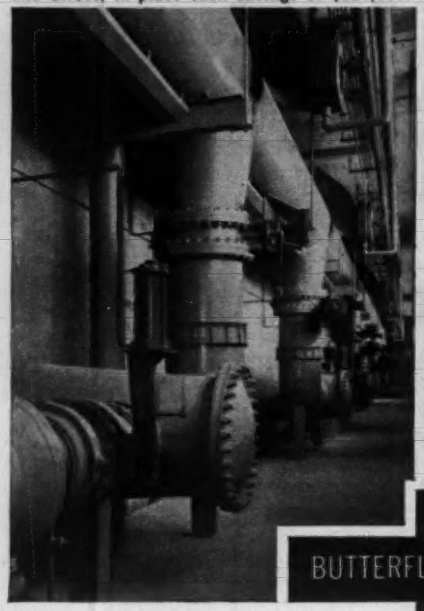
ENGINEERING CONSTRUCTION CONTRACTS—AUGUST 1955

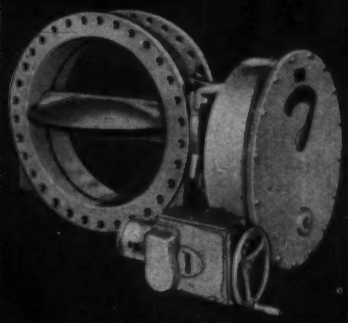
ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $44,000; *other public works,* $73,000; *industrial buildings,* $93,000; *other buildings,* $344,000.

Four Weeks—Thousands of Dollars (000 Omitted)

	August, 1955						U. S. Cumulative Eight Months		%	Canada
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1955	1954	Change '54 to '55	August 1955
Public Works											
Waterworks	103	1,827	758	14,271	4,276	2,663	**23,898**	**177,733**	149,664	+19	1,078
Sewerage	1,051	10,160	2,562	8,497	3,684	3,807	**29,761**	**252,783**	246,814	+ 2	1,397
Bridges	3,205	3,709	2,851	10,584	10,042	3,906	**34,297**	**309,579**	315,186	− 2	5,856
Earthwork and drainage	509	8,213	1,211	161	7,568	2,052	**19,714**	**338,499**	180,507	+88	21,610
Streets and roads	7,148	13,043	26,463	34,492	82,870	13,340	**177,356**	**1,427,914**	1,194,369	+20	7,647
Public buildings, residential	1,343	.....	1,437	14,601	1,046	.....	**18,427**	**183,152**	164,258	+12	3,861
Other public buildings	10,927	20,974	26,170	19,570	20,336	41,123	**139,100**	**1,161,427**	1,158,890	+0.2	15,061
Unclassified	3,393	9,251	6,759	23,838	7,226	5,005	**55,472**	**823,199**	582,403	+41	7,346
Total public	**27,679**	**67,177**	**68,211**	**126,014**	**137,048**	**71,896**	**498,025**	**4,674,286**	**3,992,091**	**+17**	**63,856**
Federal government (included in above classifications)	3,266	3,028	26,124	3,753	18,539	6,580	**61,290**	**1,166,721**	807,983	+44	16,048
Private											
Bridges	.....	.....	.....	83	.....	.....	**83**	**1,708**	6,650	−74	.....
Industrial buildings	13,650	5,362	18,087	151,639	39,411	8,923	**237,072**	**1,837,970**	1,276,979	+44	44,672
Mass housing	9,197	85,172	3,255	95,647	123,898	38,239	**355,408**	**4,175,067**	2,780,469	+50	14,493
Commercial buildings	7,902	18,687	9,621	28,548	22,563	8,150	**95,471**	**1,131,202**	850,196	+33	6,419
Unclassified	87	100	12,500	790	36,393	3,739	**53,609**	**527,739**	443,246	+19	2,798
Total private	**30,836**	**109,321**	**43,463**	**276,707**	**222,265**	**59,051**	**741,643**	**7,673,686**	**5,357,540**	**+44**	**68,382**
Total Engineering Construction:											
August, 1955—4 weeks	**58,515**	**176,498**	**111,674**	**402,721**	**359,313**	**130,947**	**1,239,668**	.....	.....	.....	**132,238**
July, 1955—4 weeks	81,185	419,607	194,252	385,357	400,466	203,296	**1,684,163**	.....	.....	.....	135,971
August, 1954—4 weeks	49,892	363,869	124,073	208,066	327,305	197,746	**1,270,951**	.....	.....	.....	365,212
Eight Months—1955	**609,564**	**3,388,323**	**1,288,647**	**2,777,240**	**2,894,744**	**1,389,454**	.....	**12,347,972**	.....	**+32**	**1,119,624**
Eight Months—1954	493,968	2,431,601	1,213,067	1,940,693	2,142,285	1,128,017	.....	.....	9,349,631	.....	1,153,475
% Change '54 to '55	+23	+39	+6	+43	+35	+23	.....	.....	.....	.....	−3

DROP-TIGHT SHUTOFF R-S Rubber-Seated Butterfly Valves give drop-tight closure to 125 psig through wedge-type action of the disc within a one-piece rubber seat. 65 of these valves, installed as shown for service in the San Jacinto River project near Houston, gave a substantial space reduction and direct, in-place cash savings of $124,000.





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regions. The Middle Atlantic is now 39% ahead of 1954; it was 60% ahead for the first half. The South is now only 6% over last year, compared with an 11% gain as of the first six months. The West-of-Mississippi is now 35%, compared with 46%, while the Far West is up 23% as against 40% at the end of June.

Cost Indexes Rise Slightly Due to Lumber, Wage Hikes

Construction costs have settled down since the sharp rise shown in the August indexes. For September, the ENR 20-cities Cost Indexes have increased very slightly. This month's upward nudge is due to lumber increases in five cities and a few scattered wage hikes in four cities.

The Construction Cost Index for September is 672.80, based on 1913 = 100. This is only 0.1% above the August index, but it's 5.1% higher than a year ago. The Building Cost Index for September gained 0.2% to 479.21, also based on 1913 = 100. Compared with a year ago, the Building Cost Index is up 5.5%. Both indexes are at new highs.

The persistent rise in lumber prices is now tapering off. ENR's price average for Douglas fir 2x4's is the highest yet recorded: $128.39 per Mftbm. This is only 0.5% above August; but it is also 7.4% higher than a year ago—and back then prices had already climbed because of a long strike at Northwest mills. Pine prices have risen even more in the past year. ENR's average for Southern pine 2x4's is now $100.47 per Mftbm, up 0.4% over August and 8.8% higher than a year ago.

For the September Construction Cost and Building Cost Indexes in each of 20 U.S. cities, plus Montreal and Toronto, see page 74.

Pennsylvania Turnpike Pushes Plans for New Extensions

The Pennsylvania Turnpike Commission announced last week that it intends to push construction of its Northwestern Extension along, just as soon as its traffic estimates show that revenue will be enough to cover debt requirements.

The commission already is planning to finance construction of a 35-mi link along Lake Erie between the New York Thruway and the Ohio border. The commission has not yet set a date for the financing, and a good guess might be that it will wait awhile in hopes of lower interest rates.

New York recently started extend-

ing the Thruway from its present terminus in Buffalo to the Pennsylvania line. Completion of the Thruway extension is scheduled for December 1965.

Presumably, the Turnpike Commission could delay the start of construction till next spring and still complete work on its short segment (which is in flat terrain) about the same time as New York.

• **Not feasible**—But the Pennsylvania agency says that the connecting route between the short Lake Erie section and the main line of the turnpike is not feasible yet. This part, and the stem of the "T", might possibly leave the main line in the Pittsburgh area go about 100 mi north to the crossbar of the "T."

The Turnpike Commission says it will push construction of the "stem"—or even parts of it—as soon as traffic studies show it can produce its share of revenue.

First step, however, will be construction of the already-feasible Lake Erie section. This is designed to carry along the long-distance traffic flowing off the Thruway and taking it on to the Ohio line, where it would connect with the proposed North-South Ohio Turnpike.

Business Briefs . . .

• **Home market survey** by the Federal Reserve Board shows that 15% of home-owners and 32% of renters aren't satisfied with their present quarters. The most common reason: not enough space. The percentage of those who have plans to buy or build this year or in 1956 is higher than it was in previous FRB surveys.

• **Price boost** of 4% is announced on clay and concrete products of American Vitrified Products Co. It gave as reasons: "Increased labor costs and increased costs of raw materials, such as coal, cement, and steel."

• **Cement Expansion**—Lone Star Cement Corp., of New York, now plans enlargements of plants in Hudson, N. Y., Dallas, and Houston, and a new 2,000,000 bbl plant at Lake Charles, La., to be finished next year. This will cost $35 million and brings the total of the company's current expansion program to $57 million, with a scheduled increase of 10.2 million bbl annual capacity.

• **New Delaware toll bridge**—The Delaware River Port Authority is seeking approval from the Pennsylvania and New Jersey legislatures for a new toll bridge, to cost about $50 million, across the Delaware between Camden and Philadelphia.

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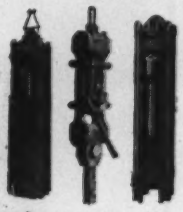

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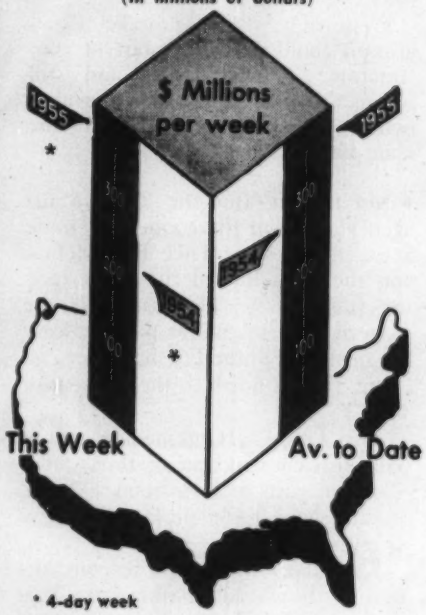
Activity This Week

As reported to ENR
(In millions of dollars)



* 4-day week

Amount of contracts let

(millions of dollars)

	This Week*	Cumulative 36 wks 1955	1954	% chge
By Ownership				
Federal	$7.0	$1,193.0	$862.8	+38
State and municipal	78.9	3,731.1	3,399.3	+10
Total public	85.9	4,924.1	4,262.1	+16
Total private	289.8	8,129.8	5,684.9	+43
U. S. Total	$375.7	$13,053.9	$9,947.0	+31
By type of work				
Waterworks	$4.1	$186.9	$155.8	+20
Sewerage	5.3	264.4	263.1	+1
Bridges	9.8	329.7	341.6	−3
Highways	29.7	1,516.1	1,295.3	+17
Earthwork, waterways	7.0	362.3	191.6	+89
Buildings:				
Public, excl. hsg.	24.4	1,207.9	1,229.6	−2
Public housg.	0.5	215.0	167.0	+29
Private housg.	125.9	4,374.7	2,979.9	+47
Commercial	19.5	1,193.6	915.7	+30
Industrial	19.9	1,902.7	1,323.1	+44
Unclassified	129.6	1,500.6	1,084.3	+38
U. S. Total	$375.7*	$13,053.9	$9,947.0	+31

* 4-day week

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction

	Week of Sept. 1	Cumulative 35 Wks 1955	1954	% Chge '54-'55
Corporate securities	$37.2	$2,242.2		+9
State and municipal:				
All except housing	78.8	2,844.3		−21
Housing	...	72.0		−21
Federal loans	...	88.2		+9
Federal aid	...	853.5		+27
Total nonfederal	$116.1	$6,100.2		−6
Federal appropriations:				
In U. S.	...	3,379.7		+63
Outside U. S.	...	84.6		+155
Total new capital	$116.1	$9,564.5		+11

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost	9/1†	672.80	323.41	141.04
	7/28†	672.24	323.15	140.92
Building cost	9/1†	479.21	259.05	136.22
	7/28†	478.03	258.41	136.01
Volume	Aug.	508	207	147
	July	699	284	202

† Official ENR Indexes for Aug. & Sept.

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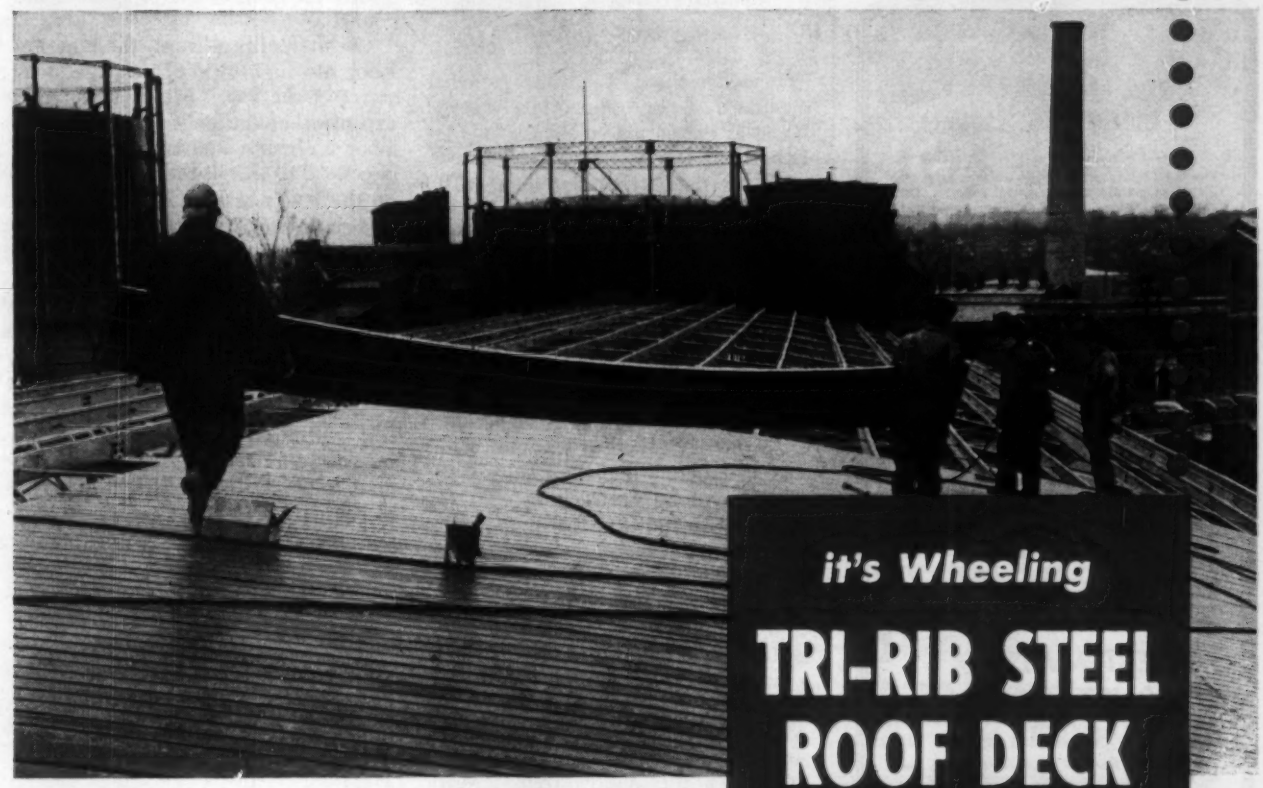

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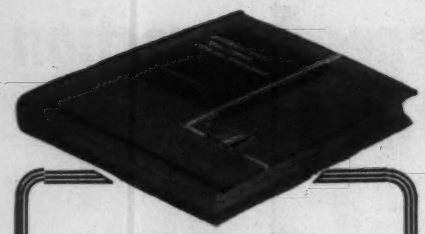

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LABOR

"United We Stand"

Merger was the big theme for Labor Day

It was on the AFL-CIO merger that organized labor pinned its biggest hopes as the nation celebrated its 61st Labor Day last Monday.

In his Labor Day statement, CIO president Walter Reuther said the new federation brings labor to "the threshold of a challenging new era.... This day, to an even greater degree than usual, is a time for looking forward—with great expectations—to the benefits that a united labor movement will bring not only to the workers, but to all the people of our great nation."

As the day ended, it was more clear than ever before that the results of the merger will be far-reaching. To the construction industry it will add up to more than a new and distant roof over the building trades even though their autonomy will be retained. Economically and politically, the proposed federation has an ambitious program.

Speaking to the millions of American trade union members on Monday, AFL president George Meany emphasized the "primary responsibility of organizing the unorganized." With an end to "civil war" within the ranks of labor, he confidently expects concentration of efforts on union organization.

Closely related—and high on the list of current goals—is a "more secure and more abundant" future for all. Hopeful of obtaining "greater equity in the distribution of purchasing power," Reuther said the CIO will continue to seek "a more just economic relationship among all the groups in our national economy," and will strive to "protect the interest and advance the welfare of America's most precious resource: the individual human being who constantly seeks a better life, a higher standard of living. . . ."

While Meany warned that the federation, directly and indirectly representing nearly a third of our population, will give labor "more power at the bargaining table," William Schnitzler, AFL secretary-treasurer, had this to say: "The AFL and CIO, made stronger because they are one, will be better able to see that the working men and women of America earn and are thus able to put into circulation a more fair share of the wealth they produce." There will be no attempt "to horsewhip the rest of the country," Meany assured, because the new federation "is dedicated, not to predatory objectives, but to serve as a force for good in the progress of our country."

On the political front, the hopes of labor are high. "We have made no secret of the fact," Meany said, "that expansion of the political activities of labor is slated when the merger takes effect. . . ." Right-to-work laws, now on the books of 18 states, and "manifold injustices," in the Taft-Hartley Act still lead the list of targets, but the whole broad field of social legislation—from social security to public housing—is already on the agenda for "strictly non-partisan" action on the part of labor.

While emphasizing labor's hopes and ambitions, labor leaders unanimously acknowledged the "tremendous responsibility" which the merger places on labor. "Let us prove once and for all, by deeds as well as by words," Meany urged, "that the united labor movement will serve as a force for good in the life of our nation."

And stressing the same point, Reuther offered this sober warning: "We know that a united labor organization can win the confidence of all Americans only as it keeps its own house in perfect order and dedicates itself with firmness and determination to serving not just the interests of the unions, but the welfare of the nation and all its people."

Unions Must Pay

Court outlines recovery of illegal strike losses

The Colorado Supreme Court, wrestling again with problems posed by unlawful union activity of the Denver Building and Construction Trades Council, has upheld a $26,000 award against the council and set a precedent for damages favorable to contractors.

Contractors' losses caused by job delays resulting from union activity not protected by the Taft-Hartley Act, it says, can be recovered in any court of competent jurisdiction, whether state or federal. And the logical yardstick of damage, where construction progress is delayed by the shutdown of equipment, is loss of use of idle machinery—not loss of profits as such.

• **What happened**— Henry Shore, contractor, got into trouble when he hired both union and non-union labor

on a state highway project. When he failed to heed the warning of the Denver Building and Construction Trades Council to use all union labor, the council picketed the project, the operating engineers walked off, and the project was delayed.

In a series of legal actions, a Colorado court found the union activity in violation of the state Labor Peace Act and granted an injunction. The NLRB and a federal court declared the council guilty of an unfair labor practice. And the case went before the state supreme court three times on appeal.

• **Issues**—Principal questions on the last appeal were whether a state court could award damages to the contractor and what they should be.

Shunning the ticklish question of original jurisdiction in labor cases, the court argued that state and federal laws haven't yet so tied the hands of state courts that they can't award damages for interference with work projects—at least where the federal law doesn't protect the union activity that caused it.

Loss of profits as a measure of damages made little sense to the court—too many factors are involved and you can't tell what proportion of the overall profit is attributable to each piece of heavy equipment. Only logical method, it said, is to compute the value of the time lost by the idle machinery. The formula: fair rental value of the equipment during the period it was idle.

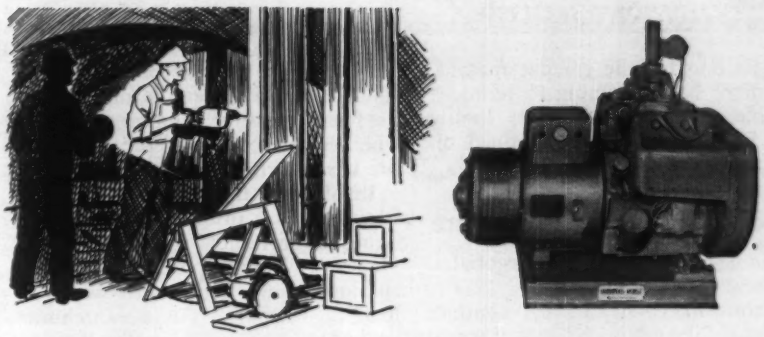
Unless otherwise provided by contract or statute, the court added, interest on the damages so computed and attorney fees incurred by the contractor can't be recovered.

Although Shore had made a profit on the job despite delays, he won $26,000 in damages, but lost his claim for $8,428 as interest and $3,250 for legal fees.

Cement Masons Lag Behind But Win a Bigger Increase

AFL cement masons employed by members of the Building Trades Employers Association of Cleveland, Ohio, were granted a 15-cent hourly wage increase last week by William J. Kennedy, arbiter.

Among the last of the trades to settle, the union had refused to go along with the 7.5-cent settlement agreed to by most of the other trades. Ten of the crafts had previously signed two-year contracts granting a 7.5-cent increase each year, with no changes in fringe benefits. Electricians held out for more and won 10 cents in a one-year contract, and terrazzo mechanics



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were waiting for the cement masons' settlement before coming to terms.

Under the new contract, hourly rates for cement masons jumped on Sept. 1 from $3.25 to $3.40.

More Boosts Here and There

Among contracts recently negotiated are these:

• **Ironworkers**—A two-year contract for Local 70 in Louisville, Ky., granting a 25-cent boost: 10 now, 2.5 Jan. 1, 10 Aug. 1, and 2.5 the following Jan. Basic rates (now $3.05) in 72 Kentucky and 10 Indiana counties will go up to $3.30 by 1957.

• **Carpenters**—A 25-cent package increase, ending a three-week strike in Racine, Wis. Seven cents goes to health and welfare—the balance to basic rates.

• **Plumbers**—A one-year contract with a 7-cent boost (raising the scale to $3.00) for Local 90 in Syracuse, N. Y.; and a one-year contract for Locals 107 (plumbers) and 522 (pipe fitters) in Louisville, Ky., with a 10-cent increase, upping the scale to $3.175, plus 2.5 cents for a jointly administered journeyman and apprentice training fund.

• **Sheet metal workers**—A one-year contract for Local 104 in San Francisco, granting a 15-cent hike plus 3% of gross earnings as vacation pay (limited to the equivalent of six paid holidays). New scale is $3.15.

• **Roofers**—Local 86 in Columbus, Ohio, signed a two-year contract, granting a 32.5-cent increase. Members get 15 cents now, and the balance in three installments next year, raising the scale to $3.075.

Secondary Boycotts

Can't confine picketing to where dispute arose

Although the line between legal and illegal secondary boycotts in the construction industry is still a thin one, a federal court has warned the NLRB against complicating the problem by being arbitrary.

Facing the question involved when the primary employer is conducting operations at several places, including a common site, it has ruled that the board has no authority to fix the situs of a dispute at only one of the primary employer's numerous business activities. To do so, it said, would isolate other employes of the primary employer from exercising their right to engage in mutual aid or protection.

The proper test, according to the court, is not whether the dispute has its focal point at another site, but whether picketing at the common site has a lawful objective.

Involved in the picketing was Otis Massey Co., insulation contractor, doing subcontract work at several Houston, Texas, projects where it employed only trades with whom it had no dispute. At a warehouse several miles away, it employed teamsters who occasionally made deliveries to the construction sites and with whom it did have a dispute. The teamsters struck and picketed the projects, but clearly indicated the dispute was with Massey and not the neutral employers.

The NLRB enjoined the picketing as illegal because the situs of the dispute, it said, was at the warehouse.

Overruling the board, the Court of Appeals for the Fifth Circuit said ". . .we think such peaceful picketing upon common premises directed solely against the primary employer with whom a labor dispute exists is still lawful under the Act, and that any adverse effect upon secondary, neutral employers must necessarily be viewed as incidental to the lawful exercise of that statutory right."

Labor Briefs . . .

• **Safety Award**—Blaw-Knox Company has received an AEC Award of Merit for its safety record last year on construction of a multi-million-dollar facility for the AEC at Richland, Wash., by its Chemical Plants Division. The two-year project required a peak labor force of 4,400 men. More than 1,100,000 accident-free hours of work performed in a three-month period.

• **Top Apprentices**—Winners of the second annual apprenticeship contest sponsored at Purdue University by the United Association of Plumbers and Pipefitters were Thomas J. Tobin, Jr., of Pipe-Fitters Local 420, Philadelphia, and Jack F. Goold of Plumbers Local 3, Aurora, Colo. Top honors in lead work went to Dale B. Morrow of Local 176, Tulsa, Okla.

• **Expelled**—In an effort to preserve the effectiveness of contractor associations as a collective bargaining unit, the Associated Contractors of Essex County, N. J., expelled one of its members and recommended similar action by the State Association. The action was taken after the contractor-member signed independently with carpenters who are still on strike over a new wage contract.

OFFICIAL PROPOSALS

Bids: September 21, 1955

Pennsylvania Turnpike Commission Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a. m. Eastern Daylight Saving Time, the 21st day of September 1955, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room #1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud for the following contract:

For the Construction of Heating System for the Quakertown Maintenance Building at Turnpike Station 266+84, Bucks County, Contract No. 560-B.

The work to be performed under this contract is generally in and around the Maintenance Building at the Quakertown Interchange. The work does not include the Plumbing System, the Heating System nor building construction except as noted in the specifications or as shown on the Contract Drawings.

Copies of plans, specifications and Contract Documents are on file and open to public inspection on 31 August 1955 at the office of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania, at the Commission's Field Office in Conshohocken, Pennsylvania, 10th Avenue and Hallowell Street, at the Commission's Field Office in Lehighton, Blakeslee Boulevard, Lehighton, Pennsylvania and the Commission's Field Office in Quakertown, Route 663, Quakertown, Pennsylvania. Plans, specifications and other contract documents will not be available before this date for mailing to prospective bidders.

Plans and contract documents may be obtained from the Commission upon deposit of ten ($10.00) dollars for each set. No refund will be made for plans returned, unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P. O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications and contract documents.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
22 August 1955

U. S. Government

Bureau of Reclamation, North Platte River Projects 81653-P-3, Casper, Wyoming. For Immediate Release August 16, 1955. UNITED STATES, DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 703C-383 for furnishing labor and materials and performing all work for STREETS AND WALKS, TRAILER COURT AND UTILITIES FOR COMPLETION OF GLENDO GOVERNMENT HOUSING, Oregon Trail Division, Glendo Unit, Wyoming, Missouri River Basin Project, will be mailed or delivered to the office of the Bureau of Reclamation, Glendo, Wyoming, in time for the public opening at 1030 a.m., Mountain Standard Time, September 13, 1955. Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: R. J. Walter, Jr., Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; C. S. Rippon, Construction Engineer, Glendo, Wyoming; and I. J. Matthews, Projects Manager, Box 280, Casper, Wyoming. No charge for copies of the specifications and drawings furnished for bidding purposes; for all others $1.50 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States. I. J. Matthews.

OFFICIAL PROPOSALS

Bids: September 22, 1955

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 22nd day of September 1955, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, N. F. Ronan, Acting District Engineer, 353 Broadway, Albany, N. Y.						
Albany	C.T. 55-13	New York State Thruway: Catskill Section-Sub. 3A (Albany Div. Maint. Bldg. Site)	....	Grading, Paving and Misc. Work	$5,500 Plans $10	$100,000
Greene	C.T. 55-12	New York State Thruway, Catskill Section-Sub. 7 (Catskill Maint. Bldg. Site)	....	Grading, Paving and Misc. Work	$3,000 Plans $10	50,000
DISTRICT No. 3, Wm. Robinson, District Engineer, Weigh Lock Building, Syracuse, N. Y.						
Onondaga	O.T. 55-9 M.T. 55-10	New York State Thruway, Ontario Section-Sub. 8A Mohawk Sect.-Sub. 8B	....	Furnish and Install 8,200 L.F. Chain Link Fence 16,000 L.F. Cattle Wire Fence	$2,000 Plans $10	36,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, 65 Court Street Buffalo, N. Y.						
Chautauqua	E. T. 55-7 S.T. 55-9	New York State Thruway, Erie Section-Sub. E-2B (West Forest Road to Brockton) Walker Rd., Pecor Rd., Mathews Rd., Lake Ave. & Acc. & Marginal Roads	4.88 (2.40) (Acc.)	Two Crse. Cem. Conc. Pavt. 2 @ 25′=4.86 Mi. Bit. Mac. Pen. Meth. Asp. Type 1=1.02 Mi. Asp. Conc. Ty. 2B=0.22 Mi. Gravel Surf. Treat.=0.97 Mi. Misc. Work=0.21 Mi. 6 Sep. Comp. I-Beam 144.5′, 271.7′, 330′, 188.5′ 182.5′ and 138′ 1 Reinf. Conc. Arch 20.7′	$215,000 Plans $50	3,908,000
Chautauqua	E.T. 55-9	New York State Thruway, Erie Section-Sub. E-3A (Brockton to Pomfret Town Line) (Sep. of Grades with the New York Central, Nickel Plate and Pennsylvania RR'S near Swede Rd.)	0.23	Two Crse. Cem. Conc. Pavt. 2 @ 25′=0.13 Mi. Cem. Conc. Pavt.=0.10 Mi. 2 Prs. Comp. I-Beam @ 432′ ea.	$78,000 Plans $15	1,416,000
Erie	E. T. 55-8 R.C. 55-72 S.T. 55-10	New York State Thruway, Erie Section, Sub. E-6B (Cain Rd. to Evans Ctr.-Eden Rd.) Angola-Brant-Farnham, Angola-Evans Center, S. H. 642, Cain Rd., Pontiac Rd., Ryther Rd., Gowans Rd., Evans Ctr.-Eden Rd. & Versailles Plank Rd.	4.48 (2.94) (Acc.)	Two Crse. Cem. Conc. Pavt. 2 @ 25′=4.37 Mi. Cem. Conc. Pavt.=0.07 Mi. Asp. Conc. Opt.=2.94 Mi. Misc. Work=0.04 Mi. 4 Hy. Seps. Comp. I-Beam 356′, 432′, 330′ & 320′ 2 Brs. Comp. I-Beam @ 278′ ea. 3 Brs. Twin Box @ 20′ ea.	$232,000 Plans $100	4,225,000
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee St., Watertown, N. Y.						
Jefferson	D.A. 55-2	Dry Hill Access Road Proj. D-AD-4(2)	1.15	Asp. Conc. Opt.=1.14 Mi. Misc. Work=0.01 Mi. Misc. Work=0.01 Mi.	$3,000 Plans $10	51,000
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Ulster	C.T. 55-11	New York State Thruway, Catskill Section-Sub. 3B (Kingston Maint. Bldg. Site)	....	Grading, Paving and Misc. Work	$3,500 Plans $10	63,000
Westchester	H.T. 55-7	New York State Thruway, Hudson Section-Subs. 9A, 10 & 11 (New York City Line to Tappen Zee Br., East Approach)	....	Furnish and Install 25,900 L.F. Chain Link Fence 2,750 L.F. Woven Wire Fence	$7,000 Plans $10	113,000
DISTRICT No. 10, M. E. Goul, District Engineer, Montauk Highway at Little East Neck Road, Babylon, L. I., N. Y.						
Suffolk	SMSP 55-2	Sunken Meadow Spur Parkway Contract No. 7	0.95	Relocation of Stream Channel	$12,000 Plans $10	208,000
Nassau	FASS 55-7	Peninsula Boulevard, Cont. 4 (Lexington St. to Southern State Pkwy.) Proj. S-319(5)	1.32	Asp. Conc., Opt.=1.13 Mi. Misc. Work=0.19 Mi. 2 Ped. Overpasses I-Beam 124.7′ ea.	$55,000 Plans $15	925,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Bids: September 15, 1955

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Public Buildings Law, sealed proposals will be received until 10:30 A.M., Daylight Saving Time, on September 15, 1955 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract B.P. 55-34A for Beach Protection (Extension of Stone Groins) at Troy and Clayton Avenues East Atlantic Beach, Town of Hempstead, Nassau County, New York

AND

Contract B.P. 55-51, Part III for Beach Protection (Four Stone Groins) at Atlantic Beach, Town of Hempstead, Nassau County, New York

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Gov. Alfred E. Smith State Office Bldg., Albany, New York.
(b) Mr. M. E. Goul, District Engineer, 325 West Main Street, Babylon, Long Island, N. Y.
(c) Mr. Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Engineer's Estimate of Cost for each of these Contracts is as follows:

B.P. 55-34A	$108,000.00
P.P. 55-51, Pt. III	735,000.00

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each roposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of five percentum, (5%) of the bid. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders". The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF PUBLIC WORKS

Bids: September 21, 1955

Construction of Trunk Sewer

CONSTRUCTION OF
CONTRACT NO. I
WEST SIDE TRUNK SEWER
STATE FAIR BOULEVARD TO BRIDGE STREET, AND FREEMAN AVENUE SEWER EXTENSION
WEST SIDE SANITARY DISTRICT
ONONDAGA COUNTY, NEW YORK

Separate sealed bids for the construction of the West Side Trunk Sewer, State Fair Blvd. to Bridge Street, and the Freeman Avenue Sewer Extension will be received for the Onondaga Public Works Commission by the County Purchasing Agent, Room 107, County Court House, Syracuse 2, New York until 2 P.M. (Eastern Daylight Saving Time), September 21, 1955 and there at said office publicly opened and read aloud.

The West Side Trunk Sewer includes the construction of approximately 5,000 lineal feet of 42-inch sanitary sewer and approximately 240 lineal feet of 20-inch and 21-inch sanitary sewers, together with all connections and appurtenances.

The Freeman Avenue Sewer Extension includes the construction of approximately 2,500 lineal feet of 24-inch sanitary sewer with all connections and appurtenances.

Information for Bidders and all Contract Documents may be examined at the said office and copies of the same obtained upon payment of Ten Dollars ($10.00) for each set. Any bidder who has submitted a bona-fide proposal, upon returning such set in good condition within thirty days of the date of receiving bids, will be refunded the full amount of his deposit. One-half of the deposit will be refunded to all non-bidders upon return of such set within thirty days of the date of receiving bids.

Copies of the Contract Documents may be examined at no expense at the above office, at the office of the Onondaga Public Works Commission, Room 400, County Court House, Syracuse 2, New York, and at the office of O'Brien & Gere, Consulting Engineers, 400 East Genesee Street, Syracuse 2, New York.

The right is reserved to waive any informalities in the bids and to reject any or all bids.

ONONDAGA COUNTY
By R. W. Sollinger
Purchasing Agent

Dated: Aug. 24, 1955

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4502) will be received at Winters, California, until October 11, 1955, for furnishing labor and materials for fish collecting facilities, Delta-Mendota Canal Intake, Central Valley Project, California. Location near Tracy, California in Alameda and Contra Costa Counties. Principal items are 112,000 cu. yds. excavation; 5,200 cu. yds. concrete in structures; 125,000 lbs. furnishing and installing trashracks and trashrack metalwork; 30,000 lbs. furnishing and installing steel and cast-iron pipe and fittings; and other work. Completion time 215 days. For particulars, address Bureau of Reclamation, P. O. Box 546, Winters, California; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: September 20, 1955

State of New Jersey
State Highway Department
Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 48 (1927) U.S.40 (1953), SEC. 30 Route 48 (1927) Route U.S. 40 (1953), Section 30, from Jonathan's Thorofare to Shore Road, Widening and Resurfacing, Egg Harbor Township and City of Pleasantville, Atlantic County. Federal Project No. F-89(7). Length 2.131 miles. The principal items of work are:

Estimated:

4,728 cu. yds. Roadway Excavation, Earth
1,148 sq. yds. Pen. Gravel Surface Course, 2" thick
21,872 sq. yds. Macadam Base Course, 4" thick
21,707 sq. yds. Pen. Mac. Inter. Course, 3" thick
1,006 cu. yds. Road Gravel
7,700 tons Pavement Type FA-BC-2, Top Course
3,100 tons Pavement Type FA-BC-2, Bottom Course
6,087 lin. ft. Corrug. Metal Culvert Pipe, various sizes
41—Inlets and Manholes
18,352 lin. ft. White Concrete Vertical Curb
7,897 sq. yds. Concrete Sidewalk, 4" thick
3,794 sq. yds. Concrete Drives & Gutters, 6" thick

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, September 20, 1955, at NINE o'clock (9:00 A.M.—EASTERN STANDARD TIME), TEN o'clock (10:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 350, 83rd Congress, and is to be performed in accordance with the "Required Provisions-Federal Aid Contracts" of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications. The attention of the bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans and supplementary specifications will be furnished upon payment of a fee of FIFTEEN DOLLARS ($15.00) for each set upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., with a check drawn to the order of the State Highway Department. A charge of $5.00 will be made for supplementary specifications unaccompanied by construction plans. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by the following documents: (1) a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00; (2) a proposal bond for a sum of not less than fifty percent (50%) of the total price bid for the project; (3) a financial statement (Part 1 of the Prequalification Questionnaire); (4) a plan and equipment statement (Part 3 of the Prequalification Questionnaire); and (5) a Non-collusion Affidavit executed in duplicate; and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

OFFICIAL PROPOSALS

Bids: September 20, 1955

City of Richmond, Virginia

NOTICE TO BIDDERS

Sealed Proposals will be received at the office of the City Purchasing Agent, 4th floor, Mosque Building, Laurel and Main Streets, Richmond, Virginia, until but not later than 11 o'clock A.M., E.S.T. September 20, 1955; at which time they will be publicly opened and read aloud, for the following work which may be awarded in whole or in part:

DIVISION J—CARY STREET ROAD INTERCEPTING SEWER, PART 2

Location: The sewer is to be constructed in Cary Street Road from Hamilton Street, northwesterly to Maple Avenue, and in Banbury Road from Cary Street Road, southwesterly to Exeter Road, in the City of Richmond, Virginia.

Type of Work: The work comprises the construction of approximately 285 linear feet of 24-inch and 43 linear feet of 18-inch concrete pipe sewer and approximately 1472 linear feet of 30-inch and approximately 7862 linear feet of 36-inch reinforced concrete pipe sewer, complete with manholes, weir and junction chambers, and all other structures, as shown, specified, and directed.

DIVISION K—RIVER ROAD FORCE MAIN

Location: The force main and the water main are to be constructed from the site of the Gambles Mill Road Pumping Station, located on the south side of River Road at Gambles Mill Road, northeasterly in River Road to the intersection of Cary Street Road & Maple Avenue, in the City of Richmond, Virginia, and partly in Henrico County, Virginia.

Type of Work: The work comprises the construction of approximately 4172 linear feet of 24-inch reinforced concrete pipe force main, and approximately 1,999 linear feet of 12-inch and approximately 187 linear feet of 4-inch cast iron water main, complete with all appurtenances, as shown, specified, and directed.

The work to be done is part of the Sewage Disposal Project, and is divided into two Divisions. The Bidder may submit a proposal for either or both Divisions, but not for any port of a Division.

The Proposal and other Contract Documents may be examined at the office of the Director of the Department of Public Works, 217 Governor Street, Richmond, Virginia, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of the Contract Documents may be obtained from the Director or the Engineers upon deposit of Twenty-five Dollars for each set, to be refunded upon the return of such set in good condition within 10 days after the opening of bids.

J. W. HUFFMAN
CITY PURCHASING AGENT

OFFICIAL PROPOSALS

Bids: September 27, 1955

The Mississippi River Bridge Authority
Contract No. 4

INVITATION TO TENDER

The Mississippi River Bridge Authority of the State of Louisiana invites proposals for the construction of the Superstructure of the River Crossing for the Greater New Orleans Bridge over the Mississippi River at New Orleans, Louisiana. Sealed proposals for the Work described will be received by The Mississippi River Bridge Authority in the office of the Authority, 422 City Hall Annex, New Orleans, Louisiana, until 10:00 a.m. Central Standard Time, September 27, 1955. Proposals will not be received after this hour. At 10:00 a.m. of the same day and date, the proposals will be publicly presented, publicly opened and publicly read in the Commission Council Chamber, City Hall.

This Contract No. 4 covers the furnishing of all materials for and the construction of the River Crossing Superstructure of a four-lane highway bridge over the Mississippi River in the vicinity of Thalia Street in New Orleans and Bringier Street in Gretna.

A fuller description of the work to be done and of the requirements, provisions, and details thereof is given in the Contract Drawings, Contract Documents and Specifications, copies of which are on display in the office of the Authority, Room 422, City Hall Annex, New Orleans, Louisiana, and in the offices of the Engineers, Modjeski and Masters, 2400 Canal Street, New Orleans, Louisiana, and State Street Building, Harrisburg, Pennsylvania, or may be obtained from said latter office upon the deposit of Twenty Dollars ($20.00) per set. Deposit checks should be made payable to Modjeski and Masters.

No Proposal will be received unless accompanied by a certified check satisfactory to the Authority drawn upon a National or Louisiana State Bank or Trust Company having an office or place of business in New Orleans, Louisiana, and payable to the order of The Mississippi River Bridge Authority for the sum of Six Hundred Thousand ($600,000.) Dollars as security for the proper execution of the Contract. Such check must not be enclosed in the sealed envelope containing the bid but must be delivered to the office of the Authority. Proper receipt for the deposit will be given by the Authority.

THE MISSISSIPPI RIVER BRIDGE AUTHORITY
Neville Levy, Chairman

Bids: September 13, 1955

The Hydro-Electric Power Commission of Ontario

ST. LAWRENCE POWER PROJECT.
POWERHOUSE DRAFT TUBE STEEL PIER NOSINGS AND FOOTINGS"

SEALED TENDERS, in quadruplicate, addressed to the undersigned, 620 University Avenue, Toronto 2, Ontario and clearly marked

"TENDER FOR ST. LAWRENCE POWER PROJECT
POWERHOUSE, DRAFT TUBE STEEL PIER NOSINGS AN FOOTINGS"

will be received up to 4:30 p.m. Eastern Daylight Saving Time on

TUESDAY SEPTEMBER 13, 1955

for the manufacture, fabrication, shop assembly, supply and delivery of 170 tons or 510 tons or 680 tons of steel pier nosings and footings required for the Ontario Hydro powerhouse.

Delivery of 170 tons is required by January 1, 1956, 170 tons by April 1, 1956, 170 tons by August 1, 1956 and 170 tons by December 1, 1956.

Copies of the tendering documents may be obtained on or after August 30, 1955, at the office of the Director of Supply, 620 University Avenue, Toronto 2, Ontario, on payment of $10.00 for each set. This charge will be refunded on reutrn of the documents in good condition.

Tendering documents may be inspected at the above location and at the offices of the following: The Commission's Field Office, Cornwall, Ontario; Power Authority of the State of New York, 270 Broadway, New York 7, New York; and Uhl, Hall & Rich, 230 Congress Street, Boston 10 Massachusetts. The lowest or any tender will not necessarily be accepted.

E. B. EASSON
SECRETARY

OFFICIAL PROPOSALS

Bids: October 3, 1955

Construction of a Sewerage Treatment Plant

ADVERTISEMENT

Notice is hereby given that sealed bids will be received for Section G in accordance with the law by the Puerto Rico Aqueduct and Sewer Authority until 3:00 o'clock P.M. on the third day of October, 1955, at the office of the Authority in Santurce, Puerto Rico, and will then be publicly opened and read.

The work comprises furnishing materials and performing the labor for the construction of the Puerto Nuevo Sewage Treatment Plant, a primary sewage treatment plant with an initial capacity of twenty-four (24) million gallons per day including influent sewer, influent junction chamber, screening chamber, main sewage pumping station, grit chamber, settling tanks, effluent chamber, outfall sewer, sludge pumping station, sludge digestion tanks and digester control building, non-potable water supply system, administration building, garage and shop, outside connecting piping, roadways and paths, grading, miscellaneous structures and appurtenances and the installation of screening, grit handling, settling tank, chlorinating and pumping equipment furnished by others.

Copies of the plans and specifications may be examined without charge at the office of the Puerto Rico Aqueduct and Sewer Authority, Santurce, Puerto Rico, or at the office of Buck, Seifert and Jost, Consulting Engineers, 223 Manuel V. Domenech Street, Hato Rey, Puerto Rico and 112 East 19th Street, New York 3, New York. Copies thereof may be obtained at the office of the Treasurer of the Puerto Rico Aqueduct and Sewer Authority, Stop 26-½, Fernandez Juncos Avenue, Santurce, Puerto Rico or at the office of Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, New York, upon deposit of cash or certified check payable to the Puerto Rico Aqueduct and Sewer Authority in the amount of One Hundred and Fifty ($150.00) Dollars, which sum will be refunded upon return of the plans and specifications in good condition within twenty (20) days after the date on which bids are received or else the entire deposit will be forfeited.

Bids will be received only from persons who have requested the plans and specifications and made the required deposit therefore under their own names. These documents cannot be obtained later than September 16, 1955.

Each proposal must be accompanied by a certified check or bid bond from a reliable surety company authorized to do business in Puerto Rico and satisfactory to the Authority in amount equal to five (5%) percent of the proposal. The certified checks will be retained to pay for any damage or loss to the Authority or the liability bond will accrue in case the successful bidder shall neglect or refuse to enter into a contract in accordance with his proposal.

The Authority reserves the right to consider bids for thirty (30) days after their receipt before awarding any contract and the right is reserved to waive any informalities, to accept any bid or to reject any or all of them.

PUERTO RICO AQUEDUCT AND SEWER AUTHORITY
by RAFAEL V. URRUTIA
Executive Director
BUCK, SEIFERT AND JOST
Consulting Engineers

Bids: September 15, 1955

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Daylight Saving Time, on September 15, 1955 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE HORACE HARDING EXPRESSWAY, SECTION 1, FROM GRAND CENTRAL PARKWAY TO LAWRENCE ST., QUEENS CO., CITY OF NEW YORK, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-79

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.

(b) Mr. M. E. Goul, District Engineer, 325 West Main Street, Babylon, Long Island, N. Y.

(c) Mr. Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $27,725.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,390.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF PUBLIC WORKS

Bids: September 21, 1955

Pennsylvania Turnpike Commission Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a. m. Eastern Daylight Saving Time, the 21st day of September 1955, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room #1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud for the following contract:

For the Construction of a Maintenance Building at Turnpike Station 266+84, Bucks County, at the Quakertown Interchange connecting to T. R. 663, Contract No. 560.

The work to be performed under this contract consists of the construction of a Maintenance Building at the Quakertown Interchange, at location on the Turnpike listed above, not including however, the plumbing, heating system, the electrical work, the general site grading, the paving or the seeding and sodding, except as noted in the specifications or as shown on the Contract Drawings.

Copies of plans, specifications and Contract Documents are on file and open to public inspection on 31 August 1955 at the office of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania, at the Commission's Field Office in Conshohocken, Pennsylvania, 10th Avenue and Hallowell Street, at the Commission's Field Office in Lehighton, Blakeslee Boulevard, Lehighton, Pennsylvania and the Commission's Field Office in Quakertown, Route 663, Quakertown, Pennsylvania. Plans, specifications and other contract documents will not be available before this date for mailing to prospective bidders.

Plans and contract documents may be obtained from the Commission upon deposit of ten ($10.00) dollars for each set. No refund will be made for plans returned, unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P. O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications and contract documents.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
22 August 1955

Bids: October 11, 1955

Wesley E. Seale Dam Project Near Corpus Christi, Texas

NOTICE TO BIDDERS

Sealed bids, in duplicate, will be received by the Lower Nueces River Water Supply District, at 211 Weber Building, Corpus Christi, Texas, until 1:30 P.M., C.S.T., Tuesday, October 11, 1955, and all bids will be publicly opened and read at 2:00 P.M., on that date, at the Corpus Christi Chamber of Commerce Office, 1201 N. Shoreline Drive, Corpus Christi, Texas, for constructing the

WESLEY E. SEALE DAM PROJECT ON THE NUECES RIVER, FIVE MILES SOUTH OF MATHIS, TEXAS.

The project consists of two Ambursen type reinforced concrete slab-and-buttress spillways 60 feet high, approximately 1346 feet and 1560 feet long, respectively; three sections of rolled fill dam approximately 2200 feet, 500 feet, and 400 feet long, respectively; an outlet structure and appurtenant works; and a field office building. The following approximate quantities are required for the principal items:

Stripping	75,000 cu. yds.
Core Trench Excavation	46,000 cu. yds.
General Excavation	146,000 cu. yds.
Trenching, and Finishing Excavation	30,000 cu. yds.
Backfill	14,000 cu. yds.
Embankments, Rolled Fill	787,000 cu. yds.
Embankments, Unclassified	110,000 cu. yds.
Topsoil	4,000 cu. yds.
Reinforced Concrete in Foundation Floors, Mats, and Paving	40,000 cu. yds.
Reinforced Concrete in Buttresses, Piers, Deck Slabs, Abutments and Structures	47,000 cu. yds.
Gravel Fill	31,000 cu. yds.
Riprap	26,000 cu. yds.
Rockfill	2,000 cu. yds.
Road Surfacing	12,000 sq. yds.
Steel Sheet Piling	5,650 tons
Reinforcing Steel	5,910 tons
Automatic Steel Crest Gates 9' x 37'	60 gates
Intake Tower, Complete with Valve & Sluice Gates	1 complete
Field Office Building -26' x 50' x 8'	1 complete

The plans, specifications, and bidding documents may be secured from the office of the general Manager, Lower Nueces River Water Supply District, 211 Weber Building, Corpus Christi, Texas; or from Reagan & McCaughan, 320 Wilson Building, Corpus Christi, Texas; or from Ambursen Engineering Corporation, 295 Madison Avenue, New York 17, or 603 Rosalie Avenue, Houston 6, Texas. A deposit of $100.00 is required for each set of plans and specifications. Upon return of plans and specifications in good condition within fifteen days after date of bidding to the Lower Nueces River Water Supply District, 211 Weber Building, Corpus Christi, Texas, the full deposit will be refunded to bona fide bidders and 50% to non bidders.

Bids must be made on the standard proposal form, in duplicate, and must be accompanied by a bid security in a total amount not less than 5% of the total maximum bid price. Of this bid security, it is mandatory under the Texas laws governing the District that a sum equalling not less than 1% of the total amount of the bid must be in the form of a certified check payable to the order of the Lower Nueces River Water Supply District. The remainder of the security may be in the form of a certified check or, at the option of the bidder, a bidder's bond. The District reserves the right to reject any and all bids, or to accept any bid deemed advantageous to it.

No bidder may withdraw his bid within 45 days after the opening thereof.

The successful bidder will be required to be bonded to the District in a sum equal to 100% of the amount of his proposal.

The bidder is hereby notified that the specifications contain the general prevailing wage scale and the Contractor shall not pay less than the wage rates so shown.

Dated this 2nd day of August 1955.

LOWER NUECES RIVER WATER SUPPLY DISTRICT
GUY I. WARREN
President
CHARLES GALLAND
Secretary

OFFICIAL PROPOSALS

Bids: September 20, 1955

City of Richmond, Virginia

NOTICE TO BIDDERS

Sealed Proposals will be received at the office of the City Purchasing Agent, 4th floor, Mosque Building, Laurel and Main Streets, Richmond, Virginia, until but not later than 11 o'clock A.M., E.S.T. September 20, 1955; at which time they will be publicly opened and read aloud, for the following work which may be awarded in whole or in part:

Notice to Bidders

Location: The equipment to be furnished shall be delivered to site of the Gambles Mill Road Pumping Station south of and adjacent to River Road at Gambles Mill Road near the westerly city limits of the City of Richmond, Virginia.

Type of Work: The equipment to be furnished is part of the West End portion of the Richmond Sewage Disposal Project and comprises the following:

Three (3) motor-driven vertical sewage pumps of 1.5, 3.0 and 6.0 mgd capacities at heads of 180 and 185 feet.

One (1) gasoline engine-driven vertical sewage pump of 6.0 mgd capacity at 185 feet head.

The Proposal and other Contract Documents may be examined at the office of the Director of the Department of Public Works, 217 Governor Street, Richmond, Virginia, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of the Contract Documents may be obtained from the Director or the Engineers upon deposit of Twenty-five Dollars for each set, to be refunded upon the return of such set in good condition within 10 days after the opening of bids.

J. W. HUFFMAN
CITY PURCHASING AGENT

Bids: September 21, 1955

Pennsylvania Turnpike Commission Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a. m. Eastern Daylight Saving Time, the 21st day of September 1955, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room #1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud for the following contract:

For the Construction of Electrical System for the Quakertown Maintenance Building at Turnpike Station 266+84, Bucks County, Contract No. 560-C.

The work to be performed under this contract is generally in and around the Maintenance Building at the Quakertown Interchange. The work does not include the Electrical System, the Plumbing System nor building construction except as noted in the specifications or as shown on the Contract Drawings.

Copies of plans, specifications and Contract Documents are on file and open to public inspection on 31 August 1955 at the office of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania, at the Commission's Field Office in Conshohocken, Pennsylvania, 10th Avenue and Hallowell Street, at the Commission's Field Office in Lehighton, Blakeslee Boulevard, Lehighton, Pennsylvania and the Commission's Field Office in Quakertown, Route 663, Quakertown, Pennsylvania. Plans, specifications and other contract documents will not be available before this date for mailing to prospective bidders.

Plans and contract documents may be obtained from the Commission upon deposit of ten ($10.00) dollars for each set. No refund will be made for plans returned, unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P. O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications and contract documents.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
22 August 1955

Bids: September 21, 1955

Pennsylvania Turnpike Commission Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a. m. Eastern Daylight Saving Time, the 21st day of September 1955, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room #1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud for the following contract:

For the Construction of Plumbing System for the Quakertown Maintenance Building at Turnpike Station 266+84, Bucks County, Contract No. 560-A.

The work to be performed under this contract is generally in and around the Maintenance Building at the Quakertown Interchange. The work does not include the Electrical System, the Heating System nor building construction except as noted in the specifications or as shown on the Contract Drawings.

Copies of plans, specifications and Contract Documents are on file and open to public inspection on 31 August 1955 at the office of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania, at the Commission's Field Office in Conshohocken, Pennsylvania, 10th Avenue and Hallowell Street, at the Commission's Field Office in Lehighton, Blakeslee Boulevard, Lehighton, Pennsylvania and the Commission's Field Office in Quakertown, Route 663, Quakertown, Pennsylvania. Plans, specifications and other contract documents will not be available before this date for mailing to prospective bidders.

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PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
22 August 1955

U. S. Government

DEPARTMENT OF ARMY, CORPS OF ENGINEERS. Sealed bids will be received on 11 October 1955 for the widening of the west three miles of the Calumet-Sag Channel. The work involves the widening of existing 60 foot channel to a width of 225 feet. The approximate quantities are as follows: Common Excavation 2,015,000 cu. yd.; Rock Excavation 1,147,000 cu. yd.; Dumped Riprap 50,000 cu. yd. Plans and specifications may be obtained without deposit from Chicago District Office, Corps of Engineers, U.S. Army Room 475 Merchandise Mart, Chicago, Ill.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-4512) will be received at Denver, Colorado, until October 25, 1955, for furnishing two 3,500-horsepower, 360-rpm, vertical-shaft, hydraulic turbines; two governors for regulating the speed of the 3,500-horsepower turbines; and two 2,750-kva, 2,400-volt, 3-phase, 60-cycle, vertical-shaft, alternating-current generators for Deer Creek Power Plant, Provo River Project, Utah. Delivery is desired within 480 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

Sealed bids for remodeling Building No. 9, National Institutes of Health, Bethesda, Md., will be received until 1:00 PM EST., Sept. 30, 1955 in Rm. 5333 General Services Bldg., 19th & F Sts., N. W., Washington, D. C., and then publicly opened in Rm. 1304. Bidding material may be obtained from Rm. 1304 General Services Bldg., 19th & F Sts., N. W., Washington, D. C., EX.3-4900, Extn. 2397. P. A. Strobel, Commissioner of Public Buildings, General Services Administration.

SEARCHLIGHT SECTION

This index is published as a convenience to the reader. Every care is taken to make it accurate but SEARCHLIGHT SECTION assumes no responsibility for errors or omissions.

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Write To:

P-7320, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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POSITIONS VACANT

Construction Foreman for firm engaged in extensive sewer, water main and treatment plant facilities. Permanent position in N. Y. State area. Only qualified applicants with broad experience. P-6595, Engineering News-Record.

Wanted: Instructor in engineering drawing and descriptive geometry. Salary $3600 for 9 month period. Dept. of Engr. Drawing, University of North Dakota, Grand Forks, North Dakota.

Estimator for building construction firm with main office in Boston. Must have engineering background and experience in this type of work. Permanent position for qualified applicant. Salary open. Write Beacon Construction Company, 102 Hano Street, Allston 34, Massachusetts.

POSITIONS VACANT

Engineers experienced in water and sewage works projects or related fields. Opportunity for permanent connection with long established consulting firm. Please state full qualifications, experience, references and salary requirements. Location Ohio. P-7504, Engineering News-Record.

Architect or Engineer—Experienced graduate to supervise school construction for architectural firm. Either resident position or one with considerable travelling in connection with several projects. Throughout Michigan or within 100 mile radius surrounding Chicago. Salary dependent upon qualifications. Give summary of education and experience, with salary expected. P-7500, Engineering News-Record.

Paper Mill Construction Superintendent — Either foreign or domestic projects. Must have 20 years experience in all phases of paper mill construction including foundations, buildings, equipment setting, boilers, conveyors, piping and instrumentation. Must have proven administrative ability to coordinate all crafts. Reply should include full resume, age, assignment preference and salary required. P-7509, Engineering News-Record.

General Construction Superintendent — For foreign and domestic assignment. Should have 15 years experience heavy industrial building construction. Engineering background preferred. Must have strong references demonstrating extensive administrative ability and capacity to handly all phases of a project. Reply giving age, complete resume and salary required. P-7510, Engineering News-Record.

Cost Engineering for Boston Building Contractor. Must be capable of processing job cost reports complete. Send resume education, experience and salary requirements. P-7527, Engineering News-Record.

Chief Estimator and assistant to the manager for young, expanding building contractor operating throughout the U. S. This is an unusual opportunity for an experienced construction engineer with proven ability to permanently associate with growing organization. Write full details of experience, personal information, references and salary requirements to Blount Brothers Construction Co. P. O. Box 949, Montgomery, Alabama.

Engineer with estimating and management experience for general contractors office doing industrial and public works building. Excellent opportunity. State age, experience and references. Our employees know of this ad. Midwest location. P-7492, Engineering News-Record.

Engineer qualified to teach structural design. Full or part-time. Rank and salary open. C. E. Dept., Manhattan College, N. Y. 71, N. Y.

Wanted—Open pit mining engineer for manganese mining in Virginia area. Write full qualifications, age and salary, to Mining Contractors, Inc., Box 790, Cedar Rapids, Iowa.

Needed immediately experienced structural engineer permanent position with progressive established engineering firm. Salary open. Write complete details education & experience to H. J. Ross Associates, 3047 Biscayne Blvd., Miami, Fla.

Engineer—Estimator, foreman, for sewer, water and roadwork. Must be top man, willing to work hard. The Forest Company, 121 North Main St., Wharton, N. J. Phone Dover 6-2320.

Estimator; Experienced in taking-off quantities for public buildings, industrial and commercial construction. Permanent position with General Contractor located in Ohio. Write, fully stating experience, education and salary expected. All replies confidential. P-7483, Engineering News-Record.

Building Construction Superintendent wanted by Boston Building Contractor for large Public Building Supervision in New England. Send complete details, salary requirements, and when available. P-7526, Engineering News-Record.

Civil Engineer—For asst. city engineer position. Must be P.E. with experience in construction and design. Civil Service tenure. Salary $645 to $724 per mo. Max. age 50. For details write to Civil Service Office, City Hall, Dearborn, Mich.

POSITIONS VACANT

Superintendents and Foremen for firm utilizing all types of construction equipment. Must have extensive mechanical experience, proven ability to supervise operators and mechanics. Permanent locations, good starting salary and opportunity for advancement. Send complete details of background, experience and salary requirements to: Box P-7624, Engineering News-Record.

Bridge designers and draftsmen wanted. State education, experience, and salary desired in reply. T. B. Gunter, Jr., Bridge Engineer, State Highway and Public Works Commission, Raleigh, North Carolina.

Graduate Engineer versed in concrete mix design, selling and marketing experience for foreign service. French or Spanish essential. Box P-7609, Engineering News-Record.

Estimator—Engineering graduate with several years experience in estimating costs of oil refineries and chemical plants for contractor in Chicago area. Submit complete resume and photograph indicating education, experience and salary requirement. Box P-7614, Engineering News-Record, 330 W. 42nd Street, New York 36, N. Y.

Highway and Bridge designers and draftsmen. Positions open for men experienced in the design of highways and bridges. Long established Pennsylvania firm. Steady program of work. Usual employee benefits. Please submit information concerning education, complete experience, references, salary requirements, and availability. P-7615, Engineering News-Record.

Engineer—Superintendent for concrete paving on roads, airports, etc. Must be graduate engineer between 30-40 years old who has been actively engaged in actually doing this type of work for at least the last five years in this capacity. This is a permanent position with a substantial company in New York State. This opening has a real future for the right man. Salary open. Box P-7558, Engineering News-Record.

See our Field Construction Manager Ad on Page 88 of this issue, P-7602

Wanted: Soil Boring Foreman with experience in Gow Method of boring and Shelby tube sampling. New firm in mid-west offers future for right person. Send application stating experience record, present employer, starting salary required, in application letter. P-7589, Engineering News-Record.

EMPLOYMENT AGENCIES

Wanted Engineers, Designers, Draftsmen-Structural, Architectural, M.E., C.E., E.E., and Ind., also Teachers and Chemists, Cleveland Engineering Agency, 2132 E. 9, Cleveland.

POSITIONS WANTED

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Construction Supt. or Project Manager, aged 46, graduate civil engineer, 18 years experience in diversified construction of Super Highway, bridges, air force bases and PWA housing projects, in Maryland, Penn, Ohio and Indiana. Just completed three and one-half million dual lane highway for state of Maryland, good organizer, have efficient following with exceptional clean record of accomplishments, will go anywhere, available at once. PW-7535, Engineering News-Record.

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Reply in full, giving particulars concerning salary, education, experience, personal history and availability.

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P-7602, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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P-7593, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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P-7595, Engineering News-Record
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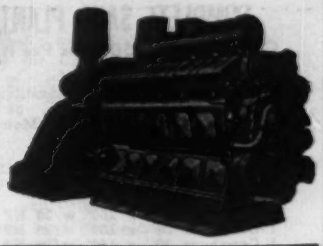

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1000	General Motors	16-567B	1440	720	250	Clark	GD-4	375	360
750	General Motors	12-567	1080	720	200	General Motors	8-268A	350	900
700	Worthington	EE-8	1000	327	175	General Motors	12-71	275	1800
675	Fairbanks Morse	38D	960	720	150	Buckeye	80	240	600
500	General Motors	8-567	720	720	148	Fairbanks Morse	32E14	220	300
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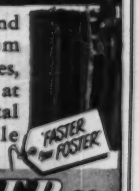

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EDITORIALS

Local Leadership Needed for Flood Protection

THE MAMMOTH TASK of cleanup and repair forced on the states and cities damaged by the floods that struck the Northeast U. S., Aug. 17-20, is being undertaken with great courage and resourcefulness. But it would be even more heartening to be able to report that the great destruction suffered had fathered a determination to do everything possible to prevent a repetition of the disaster. Signs of such determination, however, are still lacking, particularly where they would be most significant—on the local government front.

Local apathy and opposition to congressionally authorized flood control proposals, cost the states of Connecticut, Massachusetts and Rhode Island a good many million dollars in last month's floods. And this fact must continue to cast a pall over the recommendation made last week by General Sturgis, Chief of Engineers, that these latent projects plus others to cost $150 million more must be built to assure against a recurrence of a major flood disaster in southern New England. They cannot be built unless the local people want them and will work for them.

Ever since Congress, back in the Thirties, placed the federal government in the role of principal flood-control planner and provider, local enthusiasm for flood control has been hard to generate. Sometimes it is federal "interference" that is resented. Or the cost of land and easements, required to be paid for locally, runs into taxpayer opposition. Or it may be simply that the necessary physical changes called for are considered to be inconvenient. Whatever the cause, local initiative in flood protection is far from what it should be—not only in New England but elsewhere.

There are exceptions, however, and Pennsylvania, hard hit in the recent storm, should be mentioned since its Department of Forests and Waters has built several flood control dams at state expense. But it is in California that a procedure has been developed that shows great promise as a means of enlisting local participation in flood protection and giving it force and purpose. This is the plan of its Division of Water Resources to draw up complete development schemes for entire streams or river basins, leaving for future decision who will eventually finance and build the several projects involved.

A good example of how the plan works is afforded by a study just completed for the American River basin. There are already two federal dams on this river, but the study came up with 22 more plus a system of conduits to carry the water to proposed hydro plants and irrigation projects. The report is advisory only, but available for the use of any agency—public or private—considering projects on the river. It is a state master plan, and as such may be supposed to reflect needs and wishes of the local people.

This California procedure could well be considered by the New England states, both those in the path of the latest flood and the others fortunate enough this time to escape. It is true that the local New England viewpoint was given opportunity for expression in the recent comprehensive report of the New England-New York Inter-Agency Committee, but the leadership there came from the federal government, with the states following along, some reluctantly. And it is further true that the New England states exhibited local initiative in the compact that Connecticut and Massachusetts made with New Hampshire and Vermont to help pay for storage reservoirs in the latter two states. But by and large local leadership has been lacking, and it is this lack that keeps vital projects on paper long after they should be built.

No doubt the New England situation is more difficult than in Pennsylvania or California because of the presence of more interstate streams. Nevertheless state plans are possible, and the interstate relationships could be handled. Moreover, cities, through zoning and building ordinances, could do a good deal more than they have done to improve their flood protection.

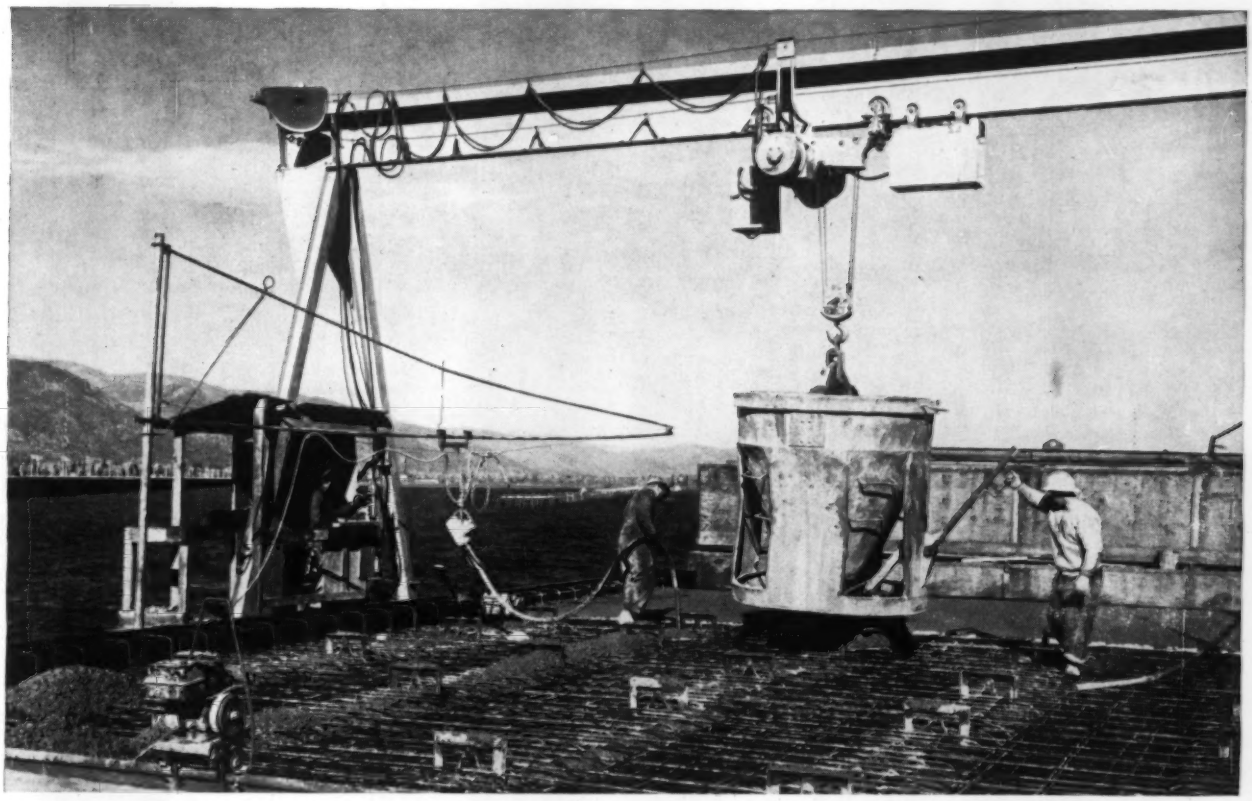
The mere development of home-grown plans would enlist a degree of local support apparently unattainable when a plan is proposed by the federal government. Once this local support is available, the federal plans would have more chance to be carried out—or alternately, state, local or private interests could undertake individual projects, always with the certainty that they fitted into a sound development plan for the river basin.

In one way or another, local support must be obtained if flood protection is ever to be really effective in New England. Developing master plans on the local level may be one way to get it. It is sincerely to be hoped that the people of New England may find in this device—or some other even more effective—a way to assure their safety from another such disaster as the one they have just suffered.

More Uniform Traffic Control

FLORIDA's State Road Department has won from the state legislature a prize that many other state highway departments covet. It has been granted absolute control of traffic on all state roads regardless of municipal boundaries. No longer can the town fathers of small municipalities set speed and traffic laws to meet their own whims. The Road Department even has control of parking on state roads.

It could be advantageous if more states followed Florida's example. One of the chief reasons for the widespread disregard for speed-limit signs in this country is the almost universal abuse of them by towns and cities. With state highway departments in control much of this abuse could be eliminated.

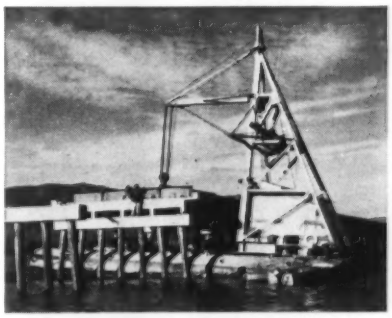


Joint contractors for the Lake Pend Oreille bridge are Peter Kiewit Sons' Co., Omaha, Neb., and Le Boeuf Dougherty Contracting Co. of Richmond, Calif. *Supervisory Authority:* Idaho Department of Highways. Seattle Concrete Pipe Co. is sub-contractor for precast concrete work on shore.

Steel-Reinforced Deck Units, 35 ft Long, Precast on Shore for Idaho Lake Bridge

When an old wooden bridge across Lake Pend Oreille in Idaho needed replacing, exhaustive studies were made as to the type of new bridge that would be built, and its exact location. The bridge is an important link in the route which connects northern Idaho with Spokane and other points south. A good deal of time and mileage are saved by crossing Lake Pend Oreille rather than going around it.

The new bridge, now under construction, is 6000 ft long. Basic design includes bents spaced generally every 35 ft except for an 82-ft navigation span. A complete concrete precasting and steam-curing operation was set up on shore to build 154 35-ft trestle spans and 25 half or 17-ft spans. Special equipment was devised to ferry and place the 70-ton,



Special floating derrick ferries deck unit to bridge. Each unit weighs about 70 tons.

30-ft-wide deck units. In addition, this equipment was used in setting forms and pouring the concrete for capping the piling.

The on-shore casting is done on a pier long enough to hold five deck units at a time. The slabs, which include stringers and curbing cast integrally with the deck, are lifted by coil loops cast in the longitudinal beams. Steam-curing on the site develops the concrete strength called for in the specifications in 48 hours.

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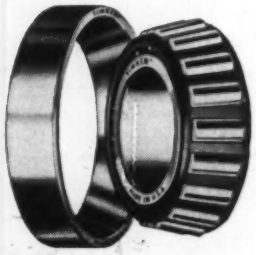

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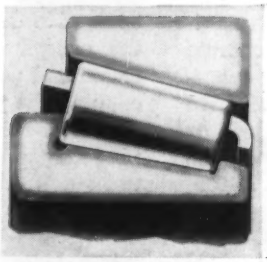

HARD ON THE OUTSIDE, TOUGH ON THE INSIDE

Rollers and races of Timken bearings are case-carburized to give a hard, wear-resisting surface and a tough, shock-resisting core. Result: longer bearing life.

The Timken Company leads in: 1. advanced design; 2. precision manufacture; 3. rigid quality control; 4. special analysis Timken steels.

NOT JUST A BALL ○ NOT JUST A ROLLER ⬭ THE TIMKEN TAPERED ROLLER ⬭ BEARING TAKES RADIAL ⬭ AND THRUST →⬭← LOADS OR ANY COMBINATION →⬭←